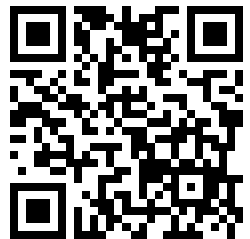

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Bulletin N:o 19

Stockholm 1947

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PREHISTORIC SITES IN HONAN

BY

J. G. ANDERSSON

THE SITE OF YANG SHAO TSUN

Discovery of the Site and Preparations for Excavation.

In the summer of 1919 a young member of the field staff of the Geological Survey of China, Mr. T. O. Chu, undertook a reconnaissance in the western part of Southern Manchuria, East of Jehol. When he started on this trip I asked him to make inquiries about stone implements, and he was very successful in bringing home numerous specimens, some of them very beautiful and remarkable which he had obtained from the local population.

The first finds of fossil mammals, both of the Pontian Hipparion fauna and from the loess, were made by me in December 1918 with the assistance of Swedish missionaries in the Hsin An and Mien Chih districts of Central Honan, south of the Yellow River.

Having been encouraged by Mr. Chu's above-mentioned finds in SW Manchuria, I instructed my private collector Liu, when he was despatched to continue the work in Honan in the autumn of 1920, likewise to inquire after stone implements. His search was rewarded with signal success. In one single village, Yang Shao Tsun, in Mien Chih Hsien, he collected, with the aid of the villagers, several hundred stone implements, axes, adzes, hoes, knives etc., some of them of excellent quality.

It seemed evident that here was some indication of a considerable prehistoric dwelling site.

My first impression of this site, which later proved to be of such fundamental importance, was obtained on April 18th, 1921, when I went there with my collector Liu.

On that day in April 1921 I wandered from the town of Mien Chih along the 8 km. road northwards to Yang Shao Tsun for the purpose of discovering the site from which Liu's abundant finds of Stone-Age implements had been derived.

About 1 km. south of the village of Yang Shao Tsun I had to cross a very large ravine, a real miniature canyon, which was subsequently found to form a very notable feature of our topographical survey of the district. When I had reached the northern side of the ravine I saw, in the side of a gully, a very interesting section. At the bottom the red Tertiary clay is exposed, and it is with clearly demarcated contact overlaid by a peculiar loose soil, full of ashes and containing fragments of pottery. It seemed not improbable that this might be the deposit from which the Stone-Age implements had been derived. After some minutes' search I found

at the very bottom of the deposit a small piece of fine red ware with black painting on a beautifully polished surface. At that time I knew nothing of the fine ceramics with black painting on a red ground that were found by Pumpelly's expeditions of 1903 and 1904 at Anau in Russian Turkestan, and hardly much more of similar polychrome vessels of the late Neolithic and Aeneolithic finds in South-Eastern Europe, and it therefore seemed to me inconceivable that such clay vessels could be found together with stone implements.

Somewhat dejected, I felt that I had followed a track which would only lead me astray, and thought it safer to return to my geological-palaeontological research. I was at that time especially interested in the large eggs of the prehistoric ostrich, of which several specimens had come into my hands, but the geological age of which was not yet clear.

I now returned, on April 19th, to the study of this problem and succeeded in personally excavating one of these eggs from a genuine loess deposit, so that the question of the age of the Asiatic ostrich was finally settled.

Meanwhile, I lay in the evenings and reflected on the Yang Shao Tsun riddle. I had by chance taken up my quarters in that very village. For a few pence the boys of the village constantly gave me new stone axes which they had found in the fields, and I myself made similar finds. On the other hand, almost everywhere in the walls of the village I could see thick deposits of the same ashy soil in which I had found the fine painted fragment of a bowl on the first day.

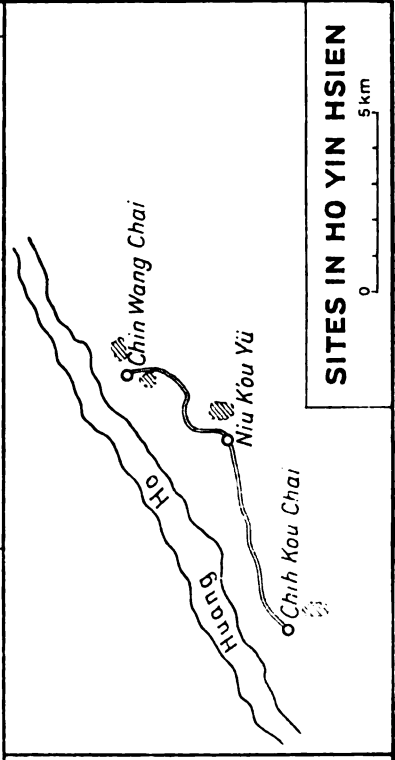
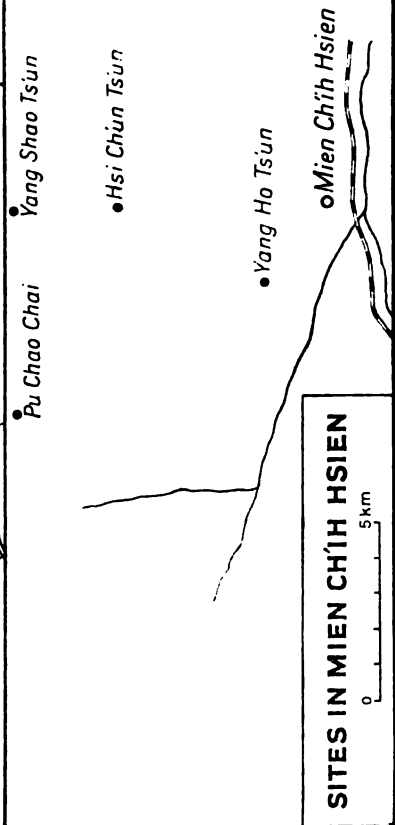
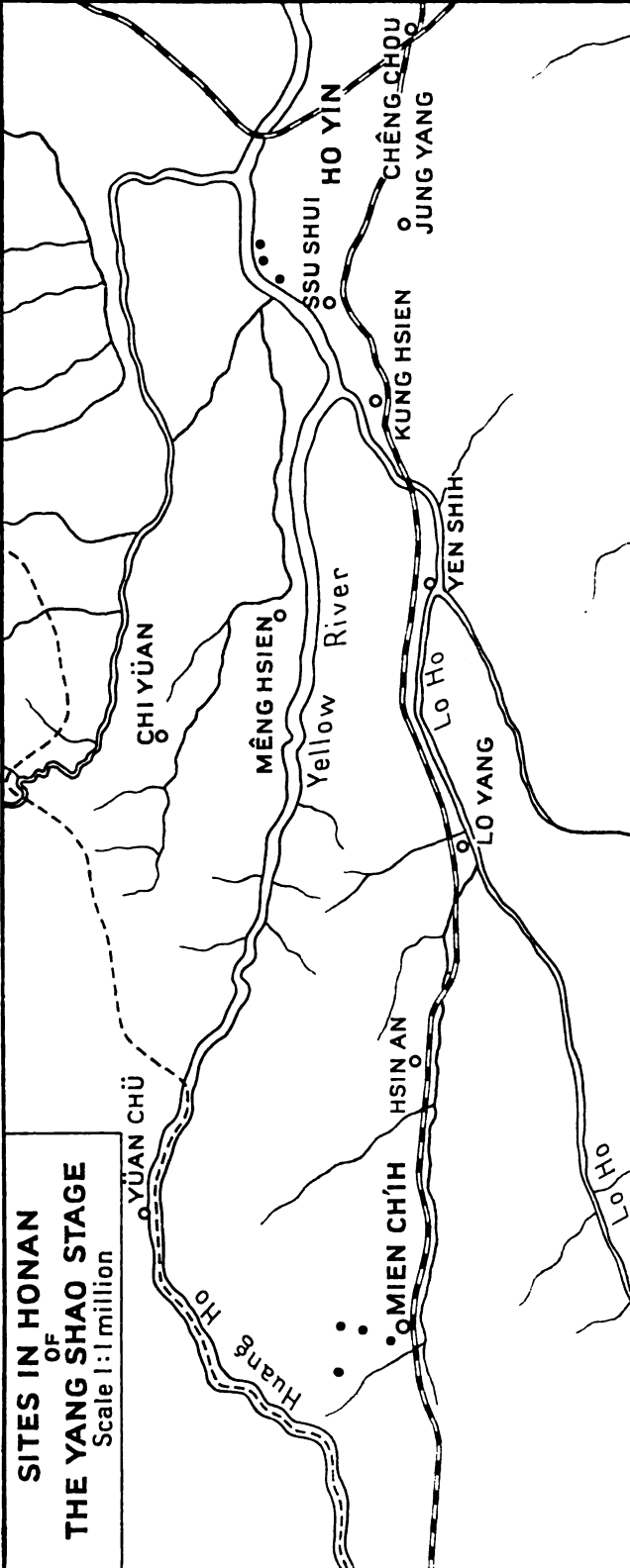
I decided to devote a whole day to a search in these ravine walls in order to clear up the question of the relation between the stone implements and the painted ceramics. After a few hour's search I extracted from the untouched ashy soil a fine example of a stone adze. During the course of the day I made other interesting discoveries, and it soon became clear that we had here to do with a deposit of unusual magnitude, rich in artifacts, especially fragments of pots including the fine, polished, polychrome ware to which I have referred above.

This time I could not undertake any detailed investigation of the new dwelling places. I had not the necessary official support for such a comprehensive task, and I had, moreover, on this occasion, important geological and palaeontological work awaiting me.

On my return to Peking I had the great good fortune to find in the library of the Geological Survey the three splendid volumes in which the discoveries of the Pumpelly expedition in Anau in Russian Turkestan were described. I found in them coloured illustrations of fragments of vessels with paintings which reminded me very much of the fragments which I had found at Yang Shao Tsun.

In the autumn of the same year I was granted permission by the Government to undertake large-scale excavations at Yang Shao Tsun. Accompanied by Mr. P. L. Yuan, of the Geological Survey, and by my Chinese assistants, I arrived at Yang Shao Tsun on October 27th, and our excavations continued until December 1st.

**SITES IN HONAN
OF
THE YANG SHAO STAGE**
Scale 1:1 million



Topographical setting.

Before I proceed to a description of the prehistoric dwellings it may be appropriate by way of orientation to give an account of the topographical conditions and to make some observations upon the modern village.

Mien Chih Hsien, the district in which Yang Shao Tsun is situated, lies beside the great and ancient highway between Loyang in the east and Sianfu in the west, the two foci of the dynastic and cultural life of the Chou and Han dynasties.

The town of Mien Chih, which is one of the stations on the Lunghai railway, lies in an east-west valley, from which the land north and south rises by gradually sloping plateaus, consisting of red Tertiary clay, covered by loess. These plateaus are intersected by numerous ravines, about 30—50 metres deep, opening into the Mien Chih valley.

In the blue distance to the south rises a mountain wall belonging to the great Tsin Ling Shan range, and similarly to the north we find mountainous country which separates the Mien Chih valley from the deeply cut, cliff-bound channel of the Yellow River far away to the north. In that direction we see first limestone hills about 3 km. north of our destination, the village of Yang Shao Tsun.

If one walks northwards from Mien Chih towards Yang Shao Tsun, one sees on both sides of the road the deep ravines which run southwards into the Mien Chih valley. In the walls of these ravines one obtains a glimpse of the structure of the Tertiary and Pleistocene strata, below, the red clays of Pliocene age and, above these clay beds, the yellow loess soil. It was in these ravines that, during one of our previous visits, we made a number of discoveries which essentially revealed the later geological history of this district: in the red clay a hitherto unknown horse, *Proboscidehipparion*, and in the loess Asia's extinct ostrich, *Struthiolithus*.

If the district is thus rich in geological relics it is not less so in respect of the early historical periods. One may often find here burial urns and bronzes of the Han dynasty, and from one tomb of this period in a neighbouring village north of Yang Shao Tsun we were shown no less than twenty-four clay vessels and one bronze dish. The architectural monuments of later times are visible on the limestone hills to the north, where a temple and two ancient fortifications testify at once to peaceful contemplation and dangerous times of unrest.

The traditional ancestor worship of the people is visible in the beautifully carved monuments to local celebrities which flank the road and give an impression of piety and sanctity to the fertile, well-cultivated countryside. One may therefore with justice say that it would be difficult to imagine a setting richer in early monuments, in the widest sense, for the imposing prehistoric remains, which we shall now closely examine. On the other hand, the discovery of this great site of Stone Age dwellings will link up in time the more remote geological discoveries with historical periods as being the oldest monument, so far as we at present know, of human activity in these parts.

The modern village of Yang Shao Tsun lies in the narrow apex between the innermost parts of two ravines, Hsi Kou and Tung Kou (Map I). The central part of the village is situated on top of the loess plateau and consists of detached brick houses, but both by Tung Kou and at the northernmost part of Hsi Kou there are houses of a quite different type, loess caves dug into the side of the ravine. A very small part of the village, in a sense a small village in itself, lies far down to the south, inside Tung Kou. Some abandoned caves on the peninsula, formed by the confluence of Tung Kou and Hsi Kou show that some dwellings, Hsi Tzu Kou (Loc. IX), once existed here beside a small temple.

Life in this small agricultural community moves in the uniform regular rhythm of century-old custom. Life is still very simple and existence is hard. Interest is therefore centred in material things and the maintenance of life directs activity predominantly to the cultivation of the fertile loess soil.

The most fatally incalculable factor of the seasons is the rainfall. Since reckless felling has destroyed the last remnants of the primeval forests which, by the evidence of the Stone-Age deposits, once covered the land, the treeless loess plain has become exceptionally sensitive to changes in the rainfall. If the normally light rainfall fails, there is no reserve of moisture in the plateau, which is drained by innumerable ravines. If on the other hand the summer rains come with the violence of a cloudburst, as not infrequently happens, the ravines are widened with catastrophic rapidity. New miniature ravines are formed in a single night of rain, houses are threatened and roads are diverted. Most feared is a drought, which is synonymous with starvation.

Quite naturally many of the domestic utensils of these peasants bear the stamp of antiquity. The more we become familiar with these simple implements, the clearer it becomes that many of them go back to prototypes of prehistoric times. But much of the life of the modern Honan peasant points to degeneration, and these simple men have no idea that the sherds of vessels in the walls of their ravines speak of a prehistoric ceramic art which nowhere flourished more profusely than during the Yang Shao civilization, and which in the history of the ceramics of China was not succeeded by a similar high artistic standard until the Sung dynasty.

The prehistoric cultural deposits at Yang Shao Tsun lie to the south of the modern village, on the detached piece of the loess plateau which is enclosed between Tung Kou and Hsi Kou, the two great ravines. On the whole, therefore, the ravines constitute a frame round it. But there exists a small area of cultural deposits outside this frame, just where the road to Mien Chih leaves the confluence of the ravines, near a small village named Tung Tzu Kou. Here, where the road from Mien Chih to Yang Shao Tsun descends into the ravine, I found three deep pockets with charcoal and abundant pottery.

On the other hand, directly south of the modern village there are considerable barren areas. But within the southern half or more of the island between the ravines, almost every square yard reveals cultural deposits varying between 1 and 5

metres in thickness, with an average of about 3 metres. The extent of the site within the main ravines is approximately indicated by the numbered digging places I—XVII, shown in map I. In a northeast-southwest direction the length of the old village area is nearly 900 m., with a breadth of about 300 m. We have calculated the area of the culture deposit to be approximately 243,000 square metres.

Description of numbered excavation spots within the Yang Shao site.

I. 500 m. S to E from the main village and 170 m. E of the ravine road, at the place marked I, Chuang and I found on the 31st October a spot containing culture earth, which was excavated during the following day. The deposit was here only 0.5—0.6 m. thick, and it formed a round spot 2.8 m. in diameter.

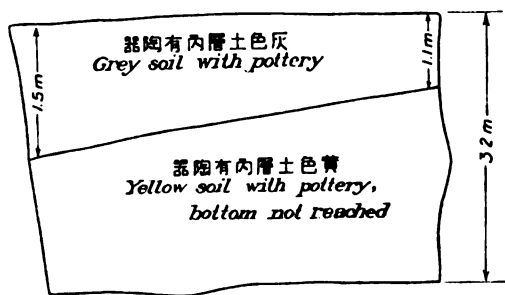


Fig. 1.

II. Just E of the ravine road and opposite to the 97th metre of the ravine road section (Map III) we started on the 1st Nov. a section running eastwest. The western end of the trench was only 4.5 m. east of the eastern side of the road ravine. The length of the trench was 20 m., but only a part in the eastern half (see fig. 1) was dug down to a maximum depth of 3.2 m. In this part of the section there was, on the top, 1—1.5 m. of grey earth containing

pottery, and below this 1.7—2.1 m. of yellow earth also containing pottery. The bottom of the culture stratum was never reached in this trench.

III. A trench, not far N from II and close to the east of the road-ravine. The trench, which was approx. 10 m. in length, ran in the direction N 10° E—S 10° W. The maximum depth was 1.6 m., out of which the upper 1.2—1.3 m. consists of greyish-brown impure culture soil. At the bottom was 0.3—0.4 m. of red clay with small concretions of lime.

IV. This locality is situated in the strongly dissected eastern part of the site 80 m. north of the word Kou in the name of the eastern ravine. (Map I). Pl. 84 gives a very clear idea of the topographical features of this spot. On a narrow ridge left by the ravine erosion we noticed a remarkable shaft dug vertically into the loess and filled with culture soil. This shaft was carefully excavated by Dr. Zdansky, and Pl. 84 shows the place during the final stage of the excavation. Figure 2 in the text gives the corresponding vertical section. The dotted line marks the bottom, which is not visible in the photograph.

The maximum height of the shaft wall was 5.4 m. Max. diameter 1.85 m. Diameter in two directions at the bottom 0.97 and 1.09 m. Height of the lowest surviving part of the wall 0.6 m. In the lower part of the shaft up to 2.7 m. from

the bottom the filling of the shaft was clearly horizontally stratified with alternate layers, some cm. thick, of gravel, sand and clay. Pottery is most common in the gravel bands. At a height of 2.4 m. from the bottom numerous plant impressions in the sediment. The upper part of the filling is almost entirely unstratified.

V. Two skeletons near N of III and close to the eastern wall of the ravine road. («Prehistory», Pl. 198.1). At a shallow depth beneath the surface of the soil two skeletons (A and B) were discovered. Dr. Zdansky, who excavated them, gave the following report: »Grab mit zwei Skeletten (A und B). Beide Skelette ausgestreckt in Rückenlage. Die linke Hand des oberen Skelettes (A) auf dem linken Oberschenkel, die rechte neben dem Becken. Kopf gegen SW. 15° S gewendet. Das obere Skelet deckt das untere so, dass der rechte Arm des unteren

10 cm. neben dem rechten Arm des oberen zu sehen war und der Kopf des unteren sich etwa 15 m. hinter dem des oberen befand. An Artefakten fanden sich ausser zahlreichen Topfscherben, ein Bruchstück eines Ringes von kreisrundem Querschnitt sowie ein Knochensplitter von der ungefähren Form einer Pfeilspitze, die aber beide viel höher als die Skelette gefunden wurden, und offenbar nicht mit dem Grabe zu tun haben. In unmittelbarer Nähe des oberen Skelettes an den regellos verstreuten Topfscherben über dem rechten Handgelenk ein Stück Quarzit von halbkreisförmigem Umriss, über den Fingerspitzen der rechten Hand eine beinerne runde Pfeilspitze?, schliesslich rechts vom Halse ein Bruchstück eines Schmuckringes mit äusserer Zuschärfung und über dem Halse schräg von rechts vorn unten nach links hinten oben ein flacher beinerne Spatel mit parallelen Langseiten.

Vom unteren Skelet (B) ist nur erhalten: Rechter Oberkiefer, Unterkiefer, Thoraxskelet der rechten Seite, rechte Vorderextremität ausschliesslich der Phalangen, Bruchstücke der linken Scapula, ein Astragalus, der zwischen den Femora des oberen Skelettes gefunden wurde. Mit dem unteren Skelet sind keine Artefakte in Beziehung zu bringen.»

VI. Small digging in eastern wall of the ravine road.

VII. Skeleton in eastern cliff. When Dr. Zdansky was excavating this skeleton the loess soil slipped away from under his feet and he fell down quite twenty metres

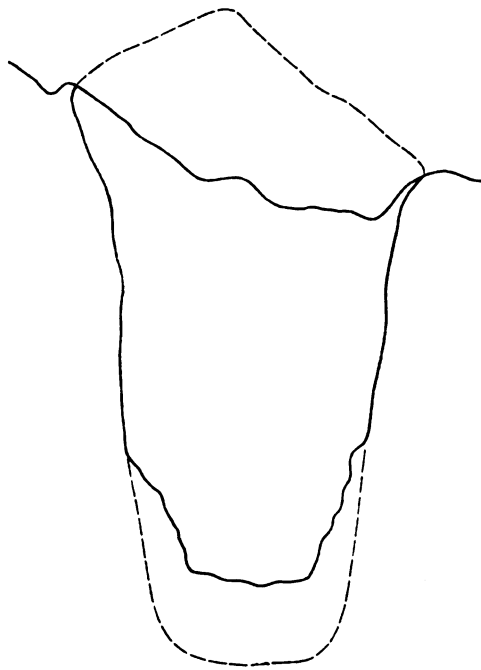


Fig. 2.

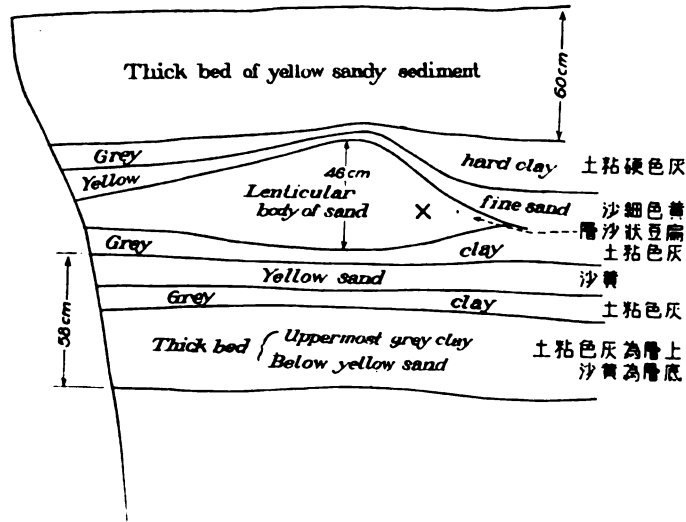


Fig. 3.

without however suffering any very serious injury. As the spot was highly dangerous no further observations were made.

VIII. In the eastern cliff, some distance N. of VII, Black noticed some human leg bones.

IX. In the southernmost part of the site, W. of some caves (abandoned dwellings) N of a small shrine, were found some human bones in a sandy lenticular body embedded in a stratified series of fine sand and clay. The local conditions are shown by figure 3 with description appended. The sandy beds slope very gently in a northerly direction (approx. 1: 50).

X. Dr. Black's digging in ashy earth W of the small ravine leading down to the small southern village.

XI. Chang's digging in the northern part of the east cliff. For a length of 7 metres Chang dug into a culture deposit of approx. one m. thickness, ashy soil alternating with charcoal and yellow earth.

XII. 100 metres NE from the small southern village we noticed during the first days of the survey some bones projecting in a loess cliff facing SSE. When Dr. Black visited us during the days 11/10—13/10 I showed him this cliff, and he at once made it clear that these outcrops, mostly leg bones, were human and that consequently we had here found an actual burial ground. Map IV gives a very clear view of the distribution of the burials. The cliff as we found it can be approximately reconstructed from memory as follows (see Map IV): cutting away the larger parts of E and D, running through L, cutting away the upper half of R and the head of T, passing close by the feet of M and cutting away the uppermost part of C.

As Dr. Black was forced to return to Peking on urgent business, Dr. Zdansky

kindly volunteered to undertake the excavation of this site, a task which he carried out with the utmost care. During the excavating he also surveyed the plan shown in Map IV. Before we proceed further with the description of the site it may be necessary to explain briefly the construction of this plan.

All the measurements taken by Dr. Zdansky were determined by three coordinates, two horizontal, X and Y, and one vertical Z with the point O at the earth's surface as the zero of all measurements. Burials D and E are not shown in map IV, as they were too far from the main group.

Let us now first survey the vertical distribution of the skeletons as shown in the figures 345 etc. printed below the capital letters marking the different skeletons. We shall then note that the uppermost burial excavated in this burial site is I 279. There are only two more, G and K, above 300. Out of 15 burials with a recorded vertical position no less than seven are to be found between 320 and 370, which is therefore to be regarded as the vertical centre of this burial ground. The lowest of all the burials is T 415. The vertical distance between the lowest and the highest burial is thus 1.36 metre, within which layer all the vertically recorded burials of this site are to be found. Above 279 m. there is barren soil, probably to a large extent brought there when the fields were being terraced for agricultural purposes. This covering soil consisted of a top-layer, 1.5 m. thick, of yellow earth, then a yellowish-grey transition layer, 0.9 m, and below this transition layer typical grey ashy earth.

If we now proceed to examine the horizontal position of the skeletons, we note that, so far as we can judge from Zdansky's plan, they were all laid in a horizontal resting on their dorsal. Of these not less than 9 have their heads turned nearly SE, varying from E 31° S to S 31° E, that is within an amplitude of only 28°. Of the four remaining, two, G and H, are nearly parallel, W 38° S, and W 43° S respectively. K with the head turned S 30° W and M turned N 37° W are isolated exceptions. In the vertical majority-group between 320 and 370 come four skeletons of the horizontal majority group with the head turned SE, but within the same vertical group there also falls such an exceptional case as M. The other exceptions, G, H and K, all occur near the 300 level. Thus it seems as if the direction with head towards the SE prevails among the early burials, whereas the custom became more varied in the upper levels. Only one of the graves, Q, contained a rich ceramic furniture consisting of five vessels. For the rest some small artifacts were found in various places during the excavation.

These objects are reproduced on plates 78—79 and described under a special heading »Small finds in the burial site, loc. XII». Their coordinates as measured by Zdansky are given with each specimen. However, I have no reason to believe that they are associated with the burials. Such chance finds are made in practically every cubic metre of the Yang Shao culture deposit.

It should be mentioned when describing loc. XII that we chanced to find not far below this spot, in a direction towards the small village, a unique collection

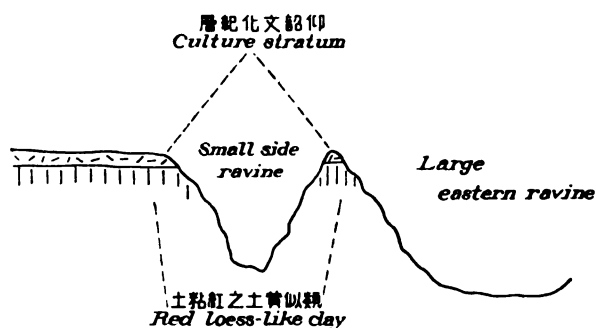


Fig. 4.

of no less than 15 miniature vases, 47—77 mm. high and standing close together (Pl. 25—27).

XIII. This is a place 60 m. NE from loc. IV. The spot is shown in Pl. 81,2 as well as in figure 4 in the text. The ravine erosion has here dissected the once continuous culture stratum, so that a small top-layer of culture soil, upon which Mr. Yuan is standing, has been isolated from the main culture deposit.

XIV. At this place (Pl. 83) which is the southernmost of all the numbered spots, situated at a sharp double bend in the eastern ravine, there recur on a very much larger scale and in a far more decisive way the same erosion phenomena as are described under XIII. As a full understanding of these processes of erosion is of fundamental importance for interpreting the general setting of the Yang Shao prehistoric settlement, there follows below a special small chapter devoted to a full discussion of this spot and to all the other observations bearing on the erosion problem.

XV. Excavation at the ravine W of the southern small village.

XVI. Excavated deep pocket between two small ravines, west of the small southern village. This will be described in full in the following chapter on the pockets.

XVII. Shaft at the western ravine. During our last week at Yang Shao Tsun my servant Chang discovered at the large western ravine a shaft like the one described under IV above. This shaft was no less than seven metres deep. During its excavation a very interesting feature was noticed: an empty hole in the filling of ashy earth containing pottery. This hole was vertical and 1.30 m. long with straight, smooth sides; in cross-section the dimensions were 34×12 cm., as shown in fig. 5. In the same filling of ashy earth there were also two horizontal cavities of much smaller size but otherwise like the big one. There can be no doubt that these empty cavities once contained some perishable objects which had been enclosed in the shaft filling, and these objects, which have entirely weathered away, can hardly have been anything but small wooden beams thrown down

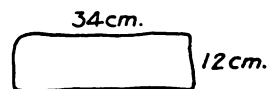


Fig. 5.

together with the earth filling, most probably already at the time when the Stone Age people still lived here, as we shall better understand from the discussion below on the erosion.

After I had completed my survey of the Yang shao Tsun site, two of my servants returned there and made additional collections. These collections were made principally in the rich southern part of the site at two spots named on our labels »West of Wang» and »Pai's pocket». The exact location of these two spots I cannot state, but they are both to be found west of the small southern village between the altitude figure 590 and the excavation spots X and XV.

The road ravine and the pockets.

The road, which runs from the main Yang Shao village in a southerly direction, in the central part of the old Yang Shao settlement, passes through a ravine 3—5 m. deep, which offers excellent opportunities for studying the depth and structure of the culture deposit.

Map III shows the section which I measured along this road ravine. The section begins N of V and ends S of VI. Its exact position is marked by two dotted arrows. The total length of the section is 161 m. in a gentle slope towards the south. The soil surface is six metres lower at the southern end than at the northern end of the section.

The substratum underneath the culture deposit is everywhere at this spot the red Pliocene clay with numerous small lime concretions. It should be noted that the loess here is nowhere visible overlying the Pliocene clay, whereas it occurs to a considerable thickness in the cliffs of the two deep ravines encircling the site.

The culture deposit is in evidence throughout almost the entire length of the section. Its intact lower part only locally reaches a thickness of 3 m., but in large parts of the section the thickness is over 2 m. The larger part of the culture deposit is entirely unstratified: the typical »ashy earth» rich in pottery, that is, the characteristic deposit of the prehistoric sites of Honan and Kansu and which should be interpreted, I believe, as refuse consisting of the local clay or loess mixed with charcoal ash, broken implements and garbage from the meals — in fact, the waste material deposited directly by the dwellers in the Late Neolithic Yang Shao village without any interference by natural agencies. But intercalated in the unstratified culture deposit there are two narrow bands of stratified culture soil observable between metres 64 and 92 of the section. These stratified bands are at the most half a metre in thickness. Most likely they represent only a redeposition during the rainy season of such parts of the original unstratified refuse soil as were washed away for some distance by the heavy summer rains. In the following chapter on the erosion we shall learn of much larger such redepositions, in a stratified form, of washed-out culture soil.

Nearly the whole of the intact culture deposit is capped over by a closely allied

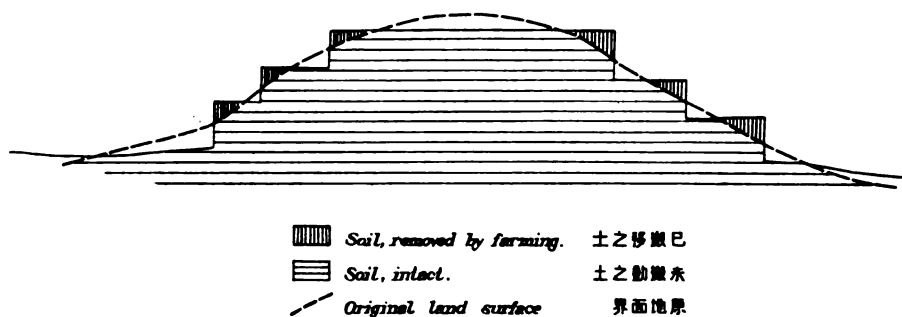


Fig. 6.

kind of soil (vertically striated in the section), a soil that is called «culture soil, removed by later farming». In fact, it is one of the most difficult problems connected with these prehistoric sites in the loess areas of Northern China to distinguish those parts of the ashy earth which are intact from the surface layer which has been carried some distance and redeposited by the farmers of historical times. The difficulty in differentiating between intact and redeposited culture soil lies in the fact that, as a rule, they are both entirely unstratified and practically identical in almost every respect. At first glance the student may suppose that the whole is an undisturbed prehistoric deposit all the way to the present soil surface. But soon the discovery of fragments of glazed crockery and other objects of undisputed late date side by side with the prehistoric potsherds forces us to realize that to some depth the deposit is no longer intact. Time after time such finds were made, not only at Yang Shao Tsun but also on other sites in Honan and Kansu. Thus, for instance, I found at Yang Shao Tsun in a part of the deposit that I held to be undoubtedly intact, at more than a metre's depth, a sherd of glazed ware that could not be older than Sung. Similar unexpected finds of recent objects in what we held to be undisturbed culture deposit were recorded more than once. At Yang Shao Tsun, where we made our first large-scale excavation, I started at localities II and III systematic diggings, taking a careful record of the stratigraphical position of the finds. In both cases the result was poor and hardly illuminative. When it came to continuing our excavation campaign I determined to leave my private Chinese assistants to dig freely within the dwelling sites wherever they found the best results. I then confined my own personal operations to the constant supervision of my men and to a careful topographical survey in varying scales of the sites and to surveys, drawn to the scale of 1: 10, of all the burials, which I found to contain by far the most reliable chronological evidence.

Let us now return to the road ravine at Yang Shao Tsun. I here tried to distinguish the redeposited surface layer from the lower part of the culture deposit, and the result of this study is given in Map III showing a cap, at the most 1.5 m. in thickness, of removed culture soil concealing almost the entire layer of genuine

intact prehistoric sediment. It goes without saying that in this road ravine I met with conditions uniquely favourable to the study of this redeposition process, and yet I must confess that the boundary line between the redeposited surface layer and the intact main body of culture soil is largely a matter of mere conjecture.

What, then, the reader may ask, is that powerful factor which has caused such a wholesale removal of the surface layer of the once intact prehistoric deposit? For anyone familiar with the loess territory of Northern China, it is easy to detect this process that has so fatally reduced the field-archaeologist's chances of making accurate and trustworthy observations. Owing to the peculiar structure of the loess soil and its very slight resistance to the attack of the violent summer rains, the farmers have found it necessary to lay out all the sloping fields in horizontal terraces with reinforced drainage for the rain water. This terracing process may be best explained by fig. 6, showing how soil has been cut away and redeposited at the outer

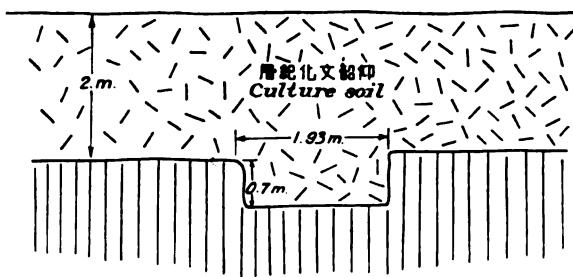
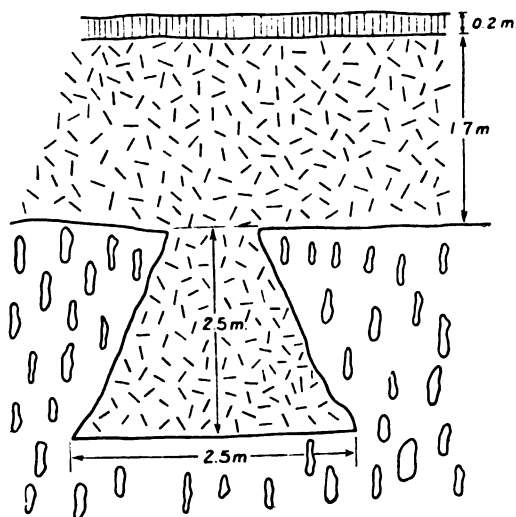


Fig. 7.

part of the terrace, a process which apparently tends to affect in a most complex and highly treacherous manner the whole extent of every loess slope.

The contact between the culture soil and its substratum, the red Tertiary clay, offers a very peculiar feature which I have named *the pocket*. Fig. 7 gives a very typical instance of one of the shallow pockets. The red clay is here overlaid with 2 m. of typical ashy earth, the culture deposit. But in the midst of the section there is a pocket of strictly rectangular outline, 1.93 m. long \times 0.7 m. deep. The culture deposit filling the pocket is grey, rich in ash and small pieces of charcoal. Nearly everywhere there were winding spots of a yellowish green loose substance which was often to be seen on the potsherds of the Yang Shao Tsun site. In the pocket, potsherds were most common near the bottom.



- (移搬經已) 土紀化文韶仰
- Culture soil, removed by later farming
- Culture soil 土紀化文韶仰
- Pliocene clay 土粘統新上

Fig. 8.

Another pocket, much deeper and of truncated conical shape, is shown in figure 8 in the text. This pocket was excavated by me personally, and I was able to prove that the basal section, judged from the surviving part, had been approximately circular in shape. The dimensions, as shown by the vertical section in fig. 8, are as follows: beneath a thin top-layer, 0.2 m. of redeposited soil, there is a bed 1.7 m. deep of intact culture soil in level contact with the underlying Tertiary clay. But in this floor of clay there is a hole 0.75 m. in diameter through which the ashy earth continues downwards, and the formerly open space in the clay extends downwards 2.5 m., widening towards the bottom in a tent-shaped fashion until it reaches a diameter of 2.5 m. The level floor of the pocket was smooth and hard, so that the bottom layer of the filling could easily be scaled off, and it then showed a whitish coating on the underside. This bottom layer, 5—15 cm. thick, is rather hard, of yellowish colour and contains very numerous plant impressions. Actually it looks as if this layer originally consisted very largely of straw or some other vegetable matter. Above this hard plant-bearing basal layer and to a height of 0.6 m. above the bottom of the pocket there was a layer of very loose and light ashy earth with distinct and regular stratification, formed by light layers rich in ash and dark layers rich in charcoal. In the hard bottom layer as well as in the ashy earth were found pot-sherds and also a sewing needle of bone.

As shown by the vertical section, the walls of the pocket converge upwards to form a truncated cone. Nevertheless there are some irregularities, especially at the base, where the pocket is slightly enlarged in an easterly direction. At a height of 1 m. above the bottom there is, on the western side, another recess, possibly a side-opening from the pocket. But here the conditions were too obscure to permit of any definite judgment being formed.

Upon the side-wall of the pocket there were elongated traces of some tool, mostly in a vertical direction. The traces did not indicate that there had been any digging action but rather that moist clay had been pasted on the wall. In several spots it was easy to scale sheets of it off the wall, 5—10 cm. thick, and underneath one such sheet another pasted surface became visible. No soot or traces of smoke were discernible, but only the clean, red-clay wall.

I measured the bottom diameter of several pockets of the type shown in fig. 8 and found that it ranged between 1.9 and 3.00 m. Numerous pockets were to be seen in the road section. In fact, they form one of the most intriguing features of this section. Between metres 10 and 13 as well as between 17 and 19 we came across shallow pockets more or less resembling fig. 7. Between 153 and 155 we found a deep pocket of the type shown in fig. 8. The parts of the section between 40 and 100 is practically free from pockets. On the other hand, between 117 and 145 the bottom contour of the culture deposit is marked by pockets crowded close together side by side. Most of them are shallow and in many ways not quite typical. I am inclined to believe that this group forms an exception from the rest. Possibly it marks one or several hut foundations of the old Yang Shao settlement. At first

sight the circle segments between 101 and 104 and between 148 and 150 look very strange, but it is easy to make out how these contours are simply lateral cuts in pockets of the deep tent-like type shown in fig. 8. When later on we proceed to discuss the nature and purpose of the pockets, we shall refer only to this type of deep pockets in the shape of a truncated cone.

In regard to the purpose of the pockets, I quote what I have written on this subject in my popular book *Children of the Yellow Earth*, pp. 172—174:

»These pockets cannot be graves, because no remains of human skeletons have been found in them. They are filled with the ashy soil, sometimes more than usually porous, and with a large proportion of ash. The pieces of pots and other artifacts found in the pockets are usually very fragmentary.»

Another conceivable explanation is that the pockets are the bottoms of cabins in which the inhabitants of the prehistoric village lived. Such have been found in Europe in dwellings of the same age.

This was the view which prevailed on me during the whole period of my excavations. But when in Peking I reconstructed piece by piece the multiform and frequently very bulky pottery of this locality, it gradually became clear to me that the ancient Yang Shao inhabitants had a much too rich and comprehensive furniture to have lived in such confined cabins.

The most probable parallel to these pockets which I can find in the West are the Kellergruben of Neolithic dwellings at Achenheim and Stutzheim in Alsace, described by Forrer.¹⁾ I reprint in Fig. 9 Kellergruben B and P at Achenheim, as well as one of the Yang Shao pockets. These figures are all drawn to the same scale, and the resemblance is striking, even with regard to the truncated conical section of the cavities.

¹⁾ Forrer, Reallexikon der prähistorischen, klassischen und frühhistorischen Altertümer, articles on Achenheim, Kellergruben, Stutzheim, Wohngruben.

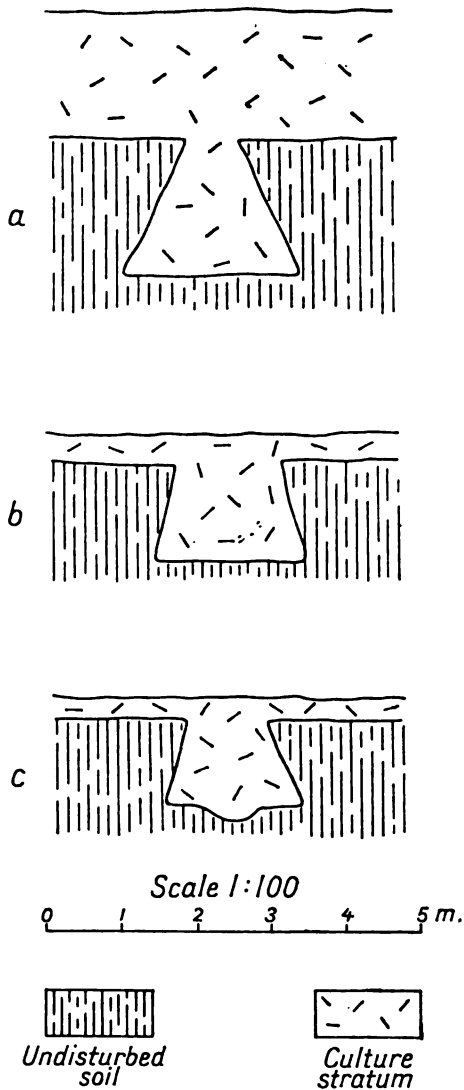


Fig. 9.

Forrer interprets his Kellergruben as underground store-rooms, but it appears from his description that there probably existed forms intermediate between »Kellergruben» and »Wohngruben».

We also know, from quite different parts of the world, of similar vertical pockets dug into the earth and intended as store-rooms. My friend the late Dr. Davidson Black was so kind as to draw my attention to an essay, of especial importance in this connection, by E. A. Hooton, »Indian Village Site and Cemetery near Madisonville, Ohio», Papers of Peabody Museum of American Archaeology and Ethnology, Harvard University, 1920, in which, under the name of »cache-pits», there are illustrated pockets identical with those in Honan and Alsace.

The site in Madisonville belongs to the earliest historical period of North America. According to Willoughby, who worked up the material and surveyed the results, the site was inhabited by an Indian tribe »immediately before the first contact of the Indians with Europeans but the site was still inhabited in the protohistoric period when the inhabitants were in a position to obtain a few objects of European iron, brass and copper, together with some glass beads, an exchange which was effected either directly with early missionaries and traders or indirectly with their Indian neighbours.»

The cache-pits of Ohio are thus, judged by our Asiatic standards, almost completely modern, and the striking resemblance to our discovery at Yang Shao Tsun only indicates a parallelism of similar conditions of life, or possibly — a somewhat far-fetched alternative — an obstinate retention of a custom which the Mongolian ancestors of the Indians brought with them to America from their Asiatic home.

These American cache-pits were filled with leaf mould, sand, ashes, etc., in distinctly varying layers, and it is interesting to note that the only cache-pit which I carefully examined in Yang Shao Tsun also showed a distinct stratification of a 5—15 cm. thick yellow substratum, with abundant plant impressions, and above it, up to 60 cm., a clear alternation between light ash strata and dark layers with abundant pieces of charcoal.

In the cache-pits of Ohio, as in Honan, artifacts abounded: fragments of ceramics and implements of stone and bone, etc.

Concerning the use of these cache-pits Hooton gives such a picturesque and instructive account that it deserves to be reproduced:

»In the opinion of the author the cache-pits were used for the storing of seed and other goods. During the harvest the maize was placed in a number of such store pits, which were situated near the dwelling of the family. Perhaps they were even within the cabin, or connected with it. During the winter one pit after another was emptied and the empty ones became refuse rooms into which were thrown ashes, remnants of meals and other household refuse. When the contents of a pit show stratification it is due to the fact that the pit was filled at successive intervals; when it is not stratified it is probable that it was completely filled at once.

Direct proof that the cache-pits were used for the purpose stated is to be found in the fact that in two cases seed has been found in them.

Within the Madisonville area were found numerous graves, but they had no connection with the cache-pits, except in rare cases, where for the sake of convenience an abandoned cache-pit was used for the interment of a corpse.»

The erosion phenomena.

As has been said above, the Yang Shao site lies in a setting of two ravines which have been cut to a depth of 40—50 metres into the plateau of Tertiary clay and Pleistocene loess. At first it seemed to me probable that this site had been selected because nature here offered protection on all sides, with the exception of a very narrow isthmus which connects the site on the north with the plain outside the ravines. I therefore at first regarded the ravines as the primary phenomenon and the village as a settlement conditioned by the ravines. But as early as during my first visit in the spring of 1921 I had observed a section that pointed to an entirely different and much more astonishing conclusion. During the detailed examination in the autumn of the same year I had an opportunity of completely proving the correctness of this new view.

In many cases the cultural deposits extend to the edge of the ravine and in certain places one sees isolated pillars consisting mainly of clay or loess, but with a thin cap of cultural earth. This, however, only shows that a certain amount of erosion has taken place since the dwelling site was abandoned, and that locally parts of the once connected cultural deposits have been completely encircled by this erosion.

But in the southern part of the site, near the junction of the two main ravines, we found sections that speak a much clearer language. The evidence here afforded was considered so important that I made a survey of this southern area on a scale twice as large as the one used for Mr. Yuan's main map. (Map I). My survey on the scale 1: 2.000 is shown in Map II. It should be noted that what is marked IX in Yuan's map is called »Abandoned caves» in my survey, and that XIV of Yuan's map is named »Castle Cliff» in my map.

The most illuminating section we met with is at the place named Castle Cliff (Loc. XIV). The spot given this name is marked in Pl. 83 by two of my men standing on the top of the hill. We can very distinctly see how the sediment below them is stratified. On this side the cliff is nearly vertical and the stratified series inaccessible. But behind the two men there is a slope down which we were able to climb and examine the stratified series. Here there is, at the top, one metre of loess-like material. Below this top-layer there is a series, not less than 5.9 m. thick, of stratified, fine sand with thin intercalations of clay and beds of fine gravel. In all this series of stratified sediments there were found sherds of typical Yang Shao pottery and pieces of charcoal; there was also found such a small and delicate object as a sewing needle.

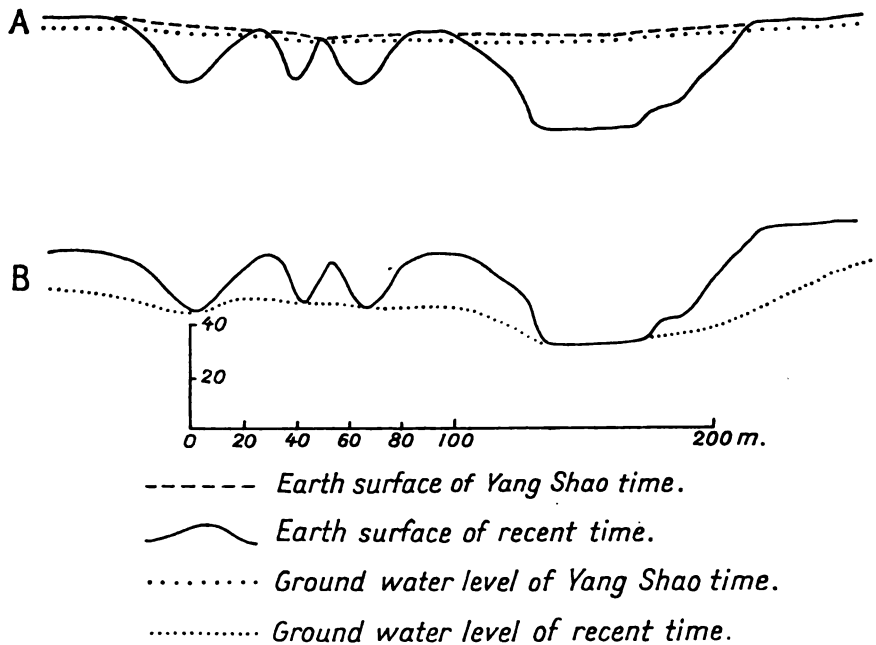


Fig. 10.

The sand locally exhibits current bedding: in other parts it shows spots of the characteristic yellowish-green coating that is often seen upon the potsherds. Locally there are also impressions in the sand.

Below this series of 5.9 m. stratified beds there were two metres of coarse gravel devoid of pottery. The gravel rests directly upon the red Pliocene clay.

As appears from Pl. 83 and the sections of Map II, these artifact-bearing stratified deposits form fantastically shaped, castle-like ravines of 40 metres, depth all round them.

The conclusion which must be drawn from these observations at once becomes clear and inevitable: at the time when the artifact-bearing sand and gravel deposits were formed, the present ravines did not exist, but a water-course flowed approximately at the level of the plateau, Fig. 10. Far from being, as at a later stage, vertically erosive, this age was marked by an accumulation, as appears from the thickness of 6 metres, of the artifact-bearing deposits left in running water and in ponds. We cannot definitely decide whether, and if so to what extent, these deposits were formed whilst the prehistoric village was inhabited, or not until somewhat later. But this does not in the least affect our extremely important conclusion that the ravines did not exist at the time of the Yang Shao civilization, but that, on the contrary, the village was built on the unbroken plain, which was here watered by a water-course running in a very shallow valley.

The great ravine system, two branches of which enclose the Yang Shao Tsun site, continues in a southerly direction for 8 km., until it joins the main valley at the town of Mien Chih. Five km. south of Yang Shao Tsun, at a place named Kuan-chuang, I encountered in this ravine conditions very similar to those at Castle Cliff. Here, in the cliff overlooking the big ravine, there are old abandoned cave dwellings all round a small shrine on the top of the loess promontory. On the eastern side I found, underneath 4 m. of loess-like but slightly stratified sediment, a thin bed of gravel containing small sherds of soft red Yang Shao pottery. Thus we have here again a proof that the big ravine, the continuation southwards of the Yang Shao Tsun ravine system, did not exist during the time of the Yang Shao culture.

Our study of the erosion phenomena in the Yang Shao Tsun area has proved beyond a doubt that the intricate system of 40-meters-deep gullies has been cut since the time of the old Yang Shao settlement. This fundamental fact leads to a series of important conclusions.

Figure 10 illustrates the influence of the ravine topography on the ground-water level. At present the ground-water level lies deep down at the bottom of the gullies. This can be clearly seen from Mr. Yuan's excellent map, in which springs and ponds, two in Tung Kou and two in Hsi Kou, clearly show the ground-water level (compare the lower section of fig. 10).

At the time of the Yang Shao settlement there were no ravines in this area. The streams that then deposited sand and gravel, mixed with debris from the ancient village, flowed in shallow depressions, only a few meters below the main level of the plain. The groundwater level must then have been about 35 meters higher than it is at present.

The knowledge of this fact gives us the means of explaining one of the strange features of the Yang Shao Tsun site, the so-called shafts, one near the eastern, the other at the western, ravine. The first of these shafts, loc. IV, was 5.4 m. deep and its bottom was approximately 33 m. above the bottom of the ravine below the chimney. The western chimney, loc. XVII, was 7 m. deep and its bottom was 34 m. above the bottom of the nearby Hsi Kou. It is really striking how exactly the positions of these chimneys, respectively 33 and 34 m. above present water level, correspond to the ancient water level (35 m.) which we have deduced from the erosion phenomena.

The shape of the shafts, narrow cylindrical funnels, several times deeper than the pockets, shows that they were certainly made for a purpose quite different from that of the pockets. The only reasonable explanation seems, then, to be that they were water wells, made for the purpose of obtaining good drinking water from the then ground-water level.

In a coarse, thick-walled potsherd from the Yang Shao Tsun site there were noticed minute impressions of some kind of seed. The microscopical examination undertaken by two Swedish botanists, G. Edman and E. Söderberg, proved that these

characteristic imprints were from the husks of rice (*Oryza sativa* L.) which was thus cultivated at Yang Shao Tsun by the people of the late Stone Age.

This extremely important discovery, for which we have to thank the acumen and erudition of the above-mentioned botanists, harmonizes perfectly with the account given above of the geographical changes at Yang Shao Tsun during the last 4,000 years. At the present day the cultivation of rice in the ravine area would be impossible. At the time of the ancient Yang Shao village, when the district was a connected plateau with streams coursing through shallow channels, the conditions for rice cultivation were considerably more favourable.

Since we have now shown that the shafts were very likely water wells used at a time when the ground-water level was near the main level of the plateau of Yang Shao Tsun, we are better equipped to discuss the full significance of the strange empty spaces in the filling of the western shaft Loc. XVII. The largest of these empty spaces was 1.3 m. long, with a cross section of 34×12 cm, everywhere with straight plane sides. On investigating them, we arrived at the conclusion that they were due to wooden logs which had been enclosed in the filling and had later completely decayed, leaving only empty spaces, exactly corresponding to the shapes of the logs. The important question now is, when was this shaft filled? It seems much more likely that the filling process took place already during the life time of the old Yang Shao village. To understand this it should be noted that the filling was effected with the typical ashy earth, the culture sediment. Had the shaft been left standing dry and empty for centuries, it would certainly have caved in sooner or later and become filled with the natural loess-like soil forming its walls. Moreover, the walls would then have been largely destroyed by the caving-in process. The mere fact that the funnel-walls were intact to a height of 7 meters shows beyond doubt that the filling took place soon after the well was abandoned. Consequently we arrive at the conclusion that most likely the old Yang Shao dwellers themselves shaped and finally threw away the beams — the impressions of which were found in the shaft Loc. XVII. Thus we arrive at a very fascinating picture of the high cultural standard of the prehistoric Yang Shao people: they cultivated rice, dug wells to obtain good drinking water, and were sufficiently advanced carpenters to shape wood into rectangular beams.

There still remains one feature to be mentioned in connection with the erosion processes at Yang Shao Tsun. We have learnt that the ravines in their present shape were formed during the last four thousand years and that, at the time of the building of the prehistoric settlement, this region was an unbroken undulating plateau. Nevertheless it is easy to prove that these ravines are only to a certain extent a new topographical feature. In fact, they are a pre-loessic feature, filled and hidden by the loess, and revealed by the vertical erosion of the last four thousand years.

Every student of the loess will soon become familiar with the fact that this Aeolian sediment is to a certain extent a valley deposit, filling and veiling the

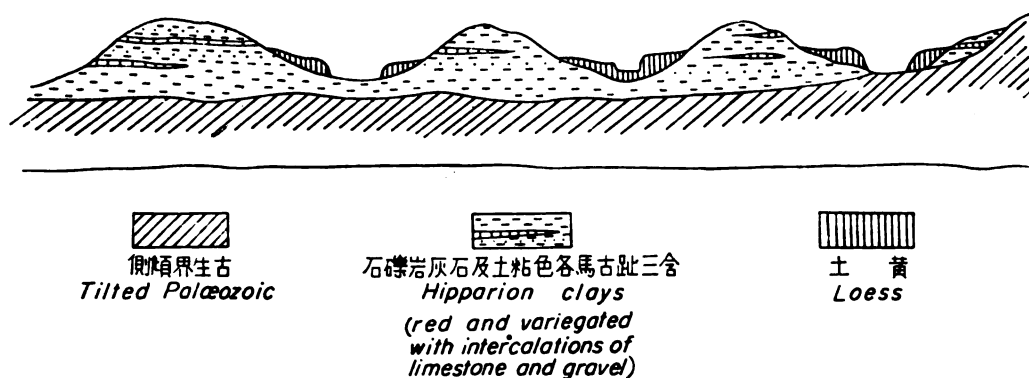


Fig. 11.

erosion channels which existed when the loess deposit began to form. In this connection I reproduce here from my paper »Essays on the Cenozoic deposits of Northern China» page 122, a figure (fig. 11) which shows very clearly how the loess at Hsinan Hsien, E of Yang Shao Tsun, is a valley deposit, filling the pre-existing valleys. In the same way I was able to prove at Yang Shao Tsun that the loess is confined mostly to the sides of the big ravines, where it appears in considerable, though greatly varying, thicknesses. In the central field, south of the modern village and between the two main ravines, I nowhere noticed any primary deposit of the loess. On the contrary, the substratum of the culture deposit here was everywhere the red Pliocene clay, as is shown most clearly by section Map III.

Vertical distribution of artifacts within the Yang Shao Tsun site.

The Yang Shao Tsun site is one of the largest prehistoric village sites which I encountered during my excavation campaign in Northern China. In a northeast-southwest direction the length of the old village area is 900 m., with a breadth from northwest to southeast of about 300 m. The thickness of the culture deposit reaches locally 4 metres, and thicknesses of 2 metres are common.

As the furniture contained in this deposit is very varied and at first sight gives the impression of being rather heterogeneous, I found it desirable to investigate by means of stratigraphically arranged excavations the vertical distribution of the different types of artifacts. For this purpose special trenches were dug, loc. II and III (see map I).

My notes on the material collected in different levels of section II are as follows:

- II. *Surface to 70 cm.*
- 70 sherds grey to black pottery.
- 33 sherds brick-red, one painted.
- Miniature bowl of grey ware.
- 6 fragments of clay rings.

2 fragments of stone tools.
1 white stone.
1 fragment of bone needle.

70—150 cm.

5 sherds, grey pottery.
10 sherds, black pottery.
4 sherds brick-red pottery, one with flat bottom.
19 fragments of clay rings.
2 fragments of bone instruments.
3 »sling stones», one of clay.

100—125 cm.

45 sherds, grey and red.

150—200 cm.

1 sherd of brown-grey pottery with string impression.
2 sherds, black pottery.
4 sherds, brick-red pottery with string impression.
1 sherd, brick-red bowl.
3 fragments of clay rings.
2 fragments of bone instruments.
1 fragment »sling stone» of clay.

200—240 cm.

79 fragments, grey and brick-red.
1 mouth of brick-red pointed vessel.
1 sherd, painted bowl.
4 sherds black pottery.
4 fragments of clay rings.
1 fragment of a bone instrument.

240—270 cm.

2 sherds brick-red painted pottery.
3 sherds brick-red pottery with string impression and pointed bottom.
1 sherd, brick-red bowl with polished margin curving inwards with slip.
2 pieces of black pottery.
1 piece of dark-grey pottery, cylindrical tumbler like E. Ch. C. VII,4.
7 fragments of clay rings.

270—315 cm.

1 small sherd of black pottery, high-footed piece resembling K 6477 in shape but much smaller.
3 sherds of brick-red pottery with string impression.
1 small sherd (K 3036: 4) with unique pattern.
8 fragments of clay rings.
1 small clay ball.

In trench III the following sequence was observed:

0—70 cm.

51 sherds, grey to reddish-brown.
10 sherds, brick-red.
1 painted sherd.
1 sherd, white Sung.
13 fragments of clay rings.
1 fragment of stone ring.

55—140 cm.

4 sherds, grey ware.
27 sherds, black pottery.
8 sherds, pale brick-red pottery. Unpainted, smooth surface.
3 sherds, brick-red with string impression.
2 sherds, brick-red mouths of vessels with pointed bottom.
3 sherds, brick-red with painting.
4 fragments of bone implements.
21 fragments of clay rings.
1 fragment of stone ring.

A review of these two stratigraphical excavations will be found to be very illuminating. The sites of these stratigraphical excavations, loc. II and III, were carefully chosen to offer undisturbed normal conditions. The land-surface is here unusually level, offering a broad expanse of flat land between 600 and 610 metres above sea level. By the aid of the near-by road ravine, where the culture stratum was carefully measured by me (Map III), we know the existence of an undisturbed culture stratum at these places. In loc. II we reached a maximum depth of 3.2 m., but the bottom of the culture stratum was not reached. In loc. III we reached the bottom of the culture stratum at a depth of 1.3 m. Below this depth we met the Tertiary red clay with lime concretions.

In every way these spots were favourable for stratigraphical excavation.

Let us now survey the result of the excavations, first examining finds other than pottery. Clay-ring fragments are among the most common finds and they occur abundantly in all the six levels. The same is also the case with sling balls, which are found at all levels except 2 and 3 from the bottom and the top-layer. Bone instruments are found in the four upper levels, stone implements only in the uppermost — which is certainly pure chance. Stone implements are always rare in the prehistoric sites, but at Yang Shao Tsun I have found them at the very base of the deposit.

Let us now discuss the vertical distribution of the pottery and count the three groups of red pottery as one unit. We find that the three main types: the red, the black and the grey all occur in loc. II at all six levels from the bottom to the top. That there are accumulations of, for instance, 32 sherds of red pottery in the surface layer may simply be due to a pot having been crushed into many sherds.

Stratigraphical excavation at loc. II.

	Grey pottery	Black pottery	Red pottery	Red pottery painted	Red pottery with string impression	Stone implements	Bone instruments	Clay ring fragments	Sling balls (rock or clay)
0—70 cm.	71 grey and black		32	1		2	1	6	
70—150 cm.	5	10	4				2	19	3
150—200 cm.	1	2	1		4		2	3	1
200—240 cm.	79 grey and brickred		4	1	1		1	4	
240—270 cm.	1	2	1	2	3			7	
270—315 cm.		1			3			8	1

Stratigraphical excavation at loc. III.

	Grey pottery	Black pottery	Red pottery	Red pottery painted	Red pottery with string impression	Clay ring fragments	Stone ring fragments	Sung sherd	Bone instruments
0—70 cm.	51		10	1		13	1	1	
55—140 cm.	4	27	8	3	5	21	1		4

In the relatively shallow excavation at loc. III there is, in the top layer, a Sung sherd, one of those intrusions caused by the activity of the farmers. Here black pottery occurs in large numbers only in the lower level, but grey and red pottery occur at both levels. Bone instruments only at the lower level but clay and stone rings at both levels.

A further material of great value for judging the stratigraphical distribution of the different groups of artifacts is a number of samples collected by Dr. D. Black

from the skeletons excavated at the burial site loc. XII. This place is situated near the ravine slope, and apparently the farmers have carted quantities of soil to this place in order to extend their fields, as they do everywhere in N. China. In this way the Yang Shao burials of loc. XII are covered by two metres or more of redeposited material moved there by later farming. As we see from map IV no burial was found above — 279 below zero (which is the earth-surface at point O). My notes from this place state that there was a top-layer 1.5 m. thick and consisting of yellow earth, which must have been carted there by farmers in recent times. Below this top-layer follows a yellowish grey transition layer 0.9 m. thick; this bed was also probably brought there by farmers of post-Yang Shao times. Only at — 2.4 m. does the Yang Shao burial ground begin with a 0.4-m. cover above the highest burial, which coincides well with loc. V, where the burials were found at a shallow depth.

We are now ready to reconstruct the happenings at loc. XII.

At an early stage of Yang Shao time the land-surface was about 350 cm. below the present land-surface. Then burials were made here at a shallow depth, not much exceeding half a metre. This became the burial ground for part of the Yang Shao site. As burials accumulated, the ground rose to 279 and probably slightly more, say 240 below zero, the level to which the later redeposit has been traced.

If this interpretation of the stratigraphy is correct, we have from —240 and downwards an intact burial ground. At any rate, we have every reason to believe that the burials themselves are fully intact as the skeletons lie in perfect order and the four vessels of skeleton Q were found still as placed when the interment ceremony ended with depositing some earth over the body.

When cleaning the Yang Shao skeletons for anatomical examination, Dr. Black carefully collected all potsherds and artifacts adhering to the bones and returned these specimens to me. It may be safe to consider that they represent an approximate average of the material scattered over the ground at the time of the interment. They may contain fragments of vessels older than the burial but we are assured that no fragment of more recent date is intermingled with these small collections.

Below are inserted lists of objects from skeletons of the small burial place loc. V, where only two skeletons were found at a shallow depth. Furthermore we publish lists of objects found together with Skel. C, G, K, M, N, O, P and S in the big burial ground loc. XII, the stratigraphy of which we have just discussed.

Black's collections.

V A about 0.5 m. below present land surface.

1 piece of bone.

5 pieces of black pottery.

1 piece of pottery with coarse mat impression.

2 pieces of obsolete pottery.

V B about 0.6 m. below present land surface.

- 7 pieces of »black pottery».
- 2 pieces of grey pottery with basket pattern.
- 1 piece of grey pottery with mat impression.
- 3 pieces of smooth grey pottery.
- 1 piece of brick-red pottery with sling impression.
- 3 pieces of thick-walled pottery.
- 4 pieces of obsolete pottery.
- 2 pieces of burnt soil.
- 2 pieces of slag.

XII C —345 cm.

- 1 bone fragment.
- 8 pieces of grey pottery with basket pattern.
- 1 thick-walled marginal fragment of grey vessel with mat impression.
- 3 pieces of grey pottery with smooth surface.
- 1 unfinished spinning whorl, grey ware.
- 1 small fragment of dark-grey »eggshell».
- 11 pieces of black ceramics.
- 1 small quartzite pebble.
- 2 concretions.
- 1 piece of a »white substance».

XII G —290 cm.

- 5 pieces of grey pottery with basket pattern.
- 4 small pieces of indifferent pottery.
- 1 small piece of bluish-grey pottery.
- 1 large bottom fragment of large brown bowl with basket pattern.
- 6 pieces of black pottery.
- 1 small fragment of clay ring.
- 1 small piece of a white substance.
- 1 big piece of slag.

XII K —288 cm.

- 10 pieces of black pottery.
- 5 pieces of dark brown pottery with mat impression.
- 7 pieces of smooth pottery of various colours.
- 3 pieces of indifferent pottery.

XII M —354 cm.

- 1 piece of bone.
- 5 pieces of black pottery.
- 8 pieces of grey pottery with basket impression.
- 1 piece of brick-red pottery with basket impression.
- 4 pieces of grey and brown smooth pottery.
- 1 piece of white substance.
- 2 pieces of concretions.
- 1 piece of quartz.
- 1 piece of brown micaceous sandstone.

XII N —345 cm.

- 8 pieces of «black pottery».
- 2 pieces of dark grey pottery with mat impression.
- 4 pieces of grey pottery with basket pattern.
- 1 piece of brick-red pottery with string impression.
- 2 pieces of smooth grey pottery.
- 12 pieces of obsolete pottery.
- 1 piece of burnt soil.
- 2 pieces of concretions.

XII O —333 cm.

- 3 pieces of bone.
- 1 half of a pig's tooth.
- 1 small carnivore tooth.
- 1 sheep's phalanx.

XII P —320 cm.

- 1 bone instrument found among ribs and thorax.
- 4 small bone fragments.
- 8 pieces of black pottery.
- 6 pieces of brown pottery.
- 3 pieces of grey pottery with basket pattern.
- 3 pieces of grey pottery, indifferent.
- 1 piece of pale-grey pottery, nearly «eggshell».
- 2 pieces of brick-red pottery, with string impressions.
- 4 concretions.
- 1 piece of slag.

XII S —306 cm.

- 1 small piece of black pottery.
- 12 pieces of obsolete pottery.
- 1 piece of burnt soil.
- 1 piece of concretion.

To summarize the above observations:

V A contains 5 pieces of black pottery and 3 sherds of the grey-to-brown group.

V B contains 7 pieces of black pottery and 6 sherds of grey and 1 brick-red.

XII C contains 11 black sherds and 14 grey sherds.

XII G contains 6 black sherds and 7 sherds of grey pottery.

XII K contains 10 black sherds, 5 sherds of brown pottery and 10 indifferent sherds.

XII M 5 black sherds, 8 grey sherds, 1 brick-red piece and 4 grey-and-brown.

XII N 8 black sherds, 8 grey sherds, 1 brick-red and 12 sherds of obsolete pottery.

XII P 8 black sherds, 13 grey-and-brown sherds and 2 brick-red pieces.

XII S 1 black sherd and 12 obsolete sherds.

As stated above, no burials in loc. XII were found at a greater depth than 415 cm. below zero. However in our search for deeper burials we noticed a number of potsherds which deserve to be mentioned here:

XII — 335—420 cm.

- 9 sherds, black pottery.
- 2 sherds, coarse reddish pottery.
- 1 sherd, brick-red with string-impression.

XII — 370—420 cm.

- 1 pale-grey tripod leg.
- 1 sherd, black pottery.
- 1 sherd of red bowl.

XII — 375—511 cm.

- 8 sherds, black pottery.
- 2 narrow mouth-pieces of brick-red vessels with string impression.

XII — 388—490 cm.

- 2 sherds, black pottery.
- 1 narrow mouth of brick-red vessel.
- 1 sherd of brick-red egg-shell.
- 1 sherd of pale-grey eggshell.

All these observations from the stratigraphical excavations of loc. II and III and from the burial grounds V and XII agree in proving that in Yang Shao Tsun the red, the grey and the black pottery occur at all levels of the site. Since in sites in Northern Honan, it has been found by our Chinese colleagues that the red pottery occurs at the lowest level, the black at a middle level and the grey in the topmost layer, I hope that the Chinese prehistorians will test my observations in Yang Shao Tsun by the aid of new and very accurate stratigraphical excavations. As far as our present knowledge goes, I am bound to consider the large Yang Shao Site as a chronological unit with a very rich and varied pottery consisting of red, black and grey wares. A further remark should be added in this connection. There is grey pottery of a much later date, from historical times in fact: Yin, Chou and Han. This historical grey pottery is in appearance widely different from the grey of the Yang Shao site. Moreover, I believe that much of the «grey pottery» reported by the Chinese archaeologists from their top-layer belongs to this grey ware of historical times.

If we now turn to the prehistoric red, black and grey wares of the Yang Shao Tsun site, we note from the detailed descriptions given above that these three wares are very intimately intermingled with one other. Certain types of vessels were produced in only one kind of ware. For instance, all the vessels with a sharply pointed bottom, string-pattern and constricted, semi-globular mouth shown in «Prehistory» Pl. 166,2 are invariably made of brick-red ware. But there is another type of vessel with broadly pointed bottom, basket pattern and the neck of an ordinary urn «Prehistory» Pl. 166,3. This type of vessel is made in a pale-grey ware, and fragments of these two types of pointed-bottomed vessels occur side by side throughout the Yang Shao Tsun deposit.

As a rule the tripods are made in grey or brownish grey ware but sometimes their surface is coated with dull black, so that they might possibly be assigned to the »black pottery» group.

The black pottery is a thing apart from the grey and red potteries. The grey pottery is grey all through with grey surface. The red is sometimes red all through, and in other cases there is a central part that remained grey because its iron was not oxidized.

But the »black pottery» is quite different. Its ware is generally a homogeneous chocolate brown, which is covered with a coating of black that is sometimes dull and in other specimens of a high lustre.

Furthermore the »black pottery» is by no means a well-defined group. Of these vessels, though of the same form type, one specimen might be black and another dark grey, and this uncertainty prevails to such an extent that I was forced to establish a big group: »grey and black pottery».

As a conclusion derived from all the above given facts we are forced to view the whole Yang Shao Tsun deposit as representing a single cultural stage characterized by an exceptionally rich and varied ceramic furniture.

DESCRIPTION OF THE FINDS.

MONOCHROME POTTERY.

GREY OR BLACK POTTERY.

Li tripods.

Pl. 1,3 (K. 6310). A stout specimen of the tall Li-tripod which we know from such splendid specimens found at Pu Chao Chai.

Height 240 mm. Diameter of mouth 141 mm. Height of collar 36 mm.

Opposite the handle, close below the collar, there is a superposed flat button.

As numerous specimens show, the usual pattern on the outside of the body of these Li-tripods is a mat impression, which runs fairly regularly in an almost vertical direction across the body and the legs but forms a most variable criss-cross pattern in the crutch between the legs. This mat impression is the dominant pattern here also but on the legs it is intermixed with patches of quadratic basket pattern. Some of these patches are faintly visible on the legs.

Pl. 1,2 (K. 6237). Fragmentary Li-tripod. Two legs and part of the collar are old material, the rest is a reconstruction.

Ware very coarse, dark brown, surface black. Thickness of wall 5—7 mm.

Legs and body covered with an irregular and obscure mat-impression. Collar irregular but smoothed with fine horizontal striations.

The junction of the three legs is only 27 mm above the base of the legs. Height to the base of the collar 118 mm. Total height of vessel 147 mm. Outer diameter of collar 90 mm.

Pl. 1,4 (K. 6399). Fragmentary Li-tripod; the greater part of the legs, but little of the collar is preserved. The height of the collar and the existence of a lug assumed from a comparison with other similar tripods.

Junction between the legs at a height of 46 mm. Base of collar at a height of 205 mm. Total height 236 mm. Maximum width at the widest part of the legs 165 mm. Legs and body with coarse, deeply-set mat impression. Collar smoothed, with horizontal striations. Ware brownish dark grey.

Pl. 2,1 (K. 6804: 9). »Pai's pocket.»

This is merely the fragment of a low and broad Li leg.

Ware brownish. Thickness of wall 7—8 mm. Surface both inside and outside blackened to such an extent that the specimen may be assigned to the »black pottery».

In order to indicate the approximate shape of the body we have reproduced in Pl. 2,2 (K. 5901: 37) a complete Li bought in Pu Chao Chai but probably dating from an early historical period. (Chou dynasty?)

Pl. 33,2 (K. 6462). A conical hollow object, possibly a detached leg of a Li-Ting. Coarse grey ware. Wall 6—8 mm.

Pl. 1,1 (K. 5928). Reproduced in »Early Chinese Culture» Pl. XVI,6. Ware dark grey, surface of both the inside and the outside smooth. A miniature Li consisting of very short legs and an enormous collar, provided with a big lug, which extends low down on one of the legs. To judge from some attachment features between two legs, there was also another lug, as shown in the figure.

Height 96 mm., outer diam. of mouth 110 mm.

Ting tripods.

Pl. 2,3 (K. 6329). Loc. XV. Less than half of the body and the proximal part of one leg. All the rest restored.

The body is nearly globular with contracted mouth (equatorial diameter 167 mm., inner diam. of mouth 104 mm.).

Below the equator and 12 mm. beneath the rim there are two raised ridges. In two places opposite to each other the upper ridge is expanded into two lobated, horizontal handles.

The blackish surface of the body is covered with an obsolete, nearly horizontal basket pattern.

The legs carry a median, high ridge with finger impressions. The height of the legs is estimated from such complete specimens as Pl. 3, 1 and 2.

Pl. 2,4 (K. 6245). Less than half of the body and only bases of legs.

The body semi-globular with a raised ridge at slightly above half the height of the body. 10 mm. beneath the rim there is a deeply serrated ridge, from which there is a smooth, 13 mm. broad zone sloping up to the mouth. A nearly horizontal basket pattern covers the outside of the body.

The reconstruction of the legs may possibly be a little too tall and the decoration of the central ridge too regular.

Pl. 2,5 (K. 6240). Ting tripod nearly complete, only the tips of two legs restored.

Ware brownish grey. Thickness of the wall 5 mm. The outside with horizontal basket impression, which is partially obliterated. Slightly above the equator an attached clay

band with two low lugs, divided by a finger mark. Slight indications of finger marks visible also on the rest of the clay band. A second clay band is attached to the slightly flaring collar, which is 25 mm. high and 29 mm. broad, measured on the inside. Each of the three legs is decorated with a median ridge with two very strong finger impressions. Height of the vessel 186 mm. Max. diameter 181 mm. Diam. of mouth 174 mm.

Pl. 2,6 (K. 6192). Ting tripod. Ware grey. Thickness of wall 5 mm.

The outside ornamented with well-preserved oblique basket pattern. At the equator an attached, very irregular clay band, and 1 centimeter above this two flattened horizontal knobs with two finger impressions.

The legs with a median ridge with one large finger print. The collar slightly flaring, as shown in section, 28 mm. broad as measured on the inside. Height of the vessel 217 mm. Widest diameter 216 mm. Diam. of mouth 211 mm. Height of legs 74 mm.

High-legged basin-tripods.

Pl. 7,1 (K. 5930). A fine specimen of this type, already reproduced in »An early Chinese Culture» XVI,2.

Ware greenish grey, very coarse. Wall 7—8 mm. thick. Small basin on three rectangular legs. On the rough outside two irregular ridges, one immediately above the leg bases, the other half-way between the leg bases and the rim. Marginal part on the inside profiled, as shown in the figure. This part shows marks of wheel-work; for the rest the vessel is of rough make.

Height 109 mm., diameter of basin 224 mm.

Pl. 7,3 a and b (K. 6216). One leg and a narrow sector of the body preserved. The tripod-basin must have been very similar to Pl. 7,1. Even the inner profile of the margin is similar, though broader. Only one feature is entirely different. The leg is flat and tapers from its base to the ground. Its dominating feature is the vertical median rib, which is very strong, begins very close beneath the rim of the vessel and carries deep oblique finger impressions.

Pl. 7,2 a and b (K. 3010: 29). Loc. VI,2. This specimen is shorter-legged than the two preceding ones. Here, too, the leg carries a median ridge, that is relatively low. The wall of the body carries, on the outside, a linear basket impression.

Pl. 39,5 (K. 3009: 67). This is a specimen belonging to the »brick-red pottery» group. It is only a fragment of a basin-tripod. The margin is nowhere preserved and the single remaining leg is broken.

The ware is very coarse, brick-red. Wall 6—7 mm. thick.

The upper, nearly vertical part of the side wall is smooth and slightly polished, and so is the high ridge below. Beneath this ridge there is a zone sloping inwards with a faint oblique basket impression. This zone passes over into the level bottom.

The leg is convex on the inside and deeply concave on the outside with high lateral ridges.

Low-footed tripod-basins.

Pl. 7,4 a and b (K. 6448). A vessel, probably basin-shaped, with very low feet. Side-wall with nearly vertical linear basket impression.

Ware grey, wall 6 mm.

Pl. 33,6 (K. 6349). Loc. XI. Fragment of a vessel very much like Pl. 7,4. The low foot very broad and solid. Here also the side-wall carries a basket impression.

Pl. 33,11 (K. 6447). An exceedingly low-footed basin-bottom very like Pl. 89,2 and 6 of the Pu Chao Chai monograph. Both bottom and side-wall outside covered with coarse irregular matimpression.

Detached tripod-legs.

The abundant use of tripods in the ancient Yang Shao village is well manifested by the noticeable frequency of detached legs, a selection of which is presented in plates 3—6. Probably the majority of them can be referred to Ting tripods, but the above description of some basin-tripods proves that the legs of Ting- and basin-tripods are very similar. A basin-tripod leg like Pl. 7,3, in the case of detached specimens, can hardly be distinguished from Ting-legs such as 5,4.

Pl. 4,1 (K. 3054: 42). A very simple leg without any decor. Ware dark grey, very coarse.

Pl. 4,8 (K. 3054: 2). Another undecorated leg, broadly rectangular in cross-section. Ware pale-grey, exceedingly coarse.

Pl. 4,2 (K. 3054: 41). Another simple leg, like 4,8 but much shorter. Ware very fine, brownish grey.

Pl. 4,3 (K. 3054: 53). Another type of undecorated tripod-leg. Cross-section triangular.

Pl. 4,5 (K. 3054: 54). A very big and stout undecorated leg, slightly convex on the inside and correspondingly concave on the outside. Ware bluish-dark grey, coarse.

Pl. 4,4 (K. 3054: 14). A smaller specimen, but like 4,5 when viewed from the outside. The inside is flat, but the outside has a deep median fosse surrounded by high rounded marginal ridges.

Ware brownish brick-red.

Pl. 4,6 (K. 3054: 43). Like 4,4 but much bigger. The inside convex, the outside deeply concave, with the faint development of a flattened median ridge down in the fosse.

Ware brick-red. Inside of vessel blackened.

Pl. 5,6 (K. 3054: 5). In a way this specimen recalls 4,6, but the leg is much more slender and the median ridge is much higher, with deeply accentuated oblique finger impressions. Ware grey.

Pl. 5,8 (K. 3054: 47). In general like 5,6 but broad and conical in outline. The median ridge has oval impressions made with the finger-tip.

Pl. 4,7 (K. 3054: 12). A small leg, rounded rectangular in cross-section, with narrow straight cuts on outer corners. Ware grey.

Pl. 4,9 (K. 3054: 40). In general outline like 4,7, angularly rectangular in cross-section, with low, indented ridges on the outer corners. Ware brownish, the vessel's inside blackened.

Pl. 3,2 (K. 3054: 50). Here enough of the vessel is preserved to show that it was actually a Ting with a very faint oblique basket impression on the outside.

The leg is straight, rounded rectangular in cross-section. Strong median ridge with deep finger impressions.

Pl. 5,5 (K. 6353). Loc. IV,1.

A straight leg, elegantly widened laterally at the base. Median ridge with strong oblique finger-impressions. Pale-grey ware.

Pl. 5,4 (K. 6333). Loc. XV. A strong, elegantly curved leg, narrowing towards the foot. The median ridge, which begins high up on the wall of the vessel, is very pronounced with exceedingly deep oblique finger impressions. Brownish ware.

Pl. 3,5 (K. 3054: 48). A strong rectangular leg with a short median ridge, half of it on the leg and half on the wall of the vessel.

Pl. 3,6 (K. 6341). Loc. XII, 4.55—5 m. This was also a Ting with horizontal basket impression and a sharp, narrow ridge at the equator. The leg is straight, slightly narrowing towards the foot. The outside slightly concave with a deeply notched median ridge.

Pl. 3,1 (K. 6354). Loc. IV,1. A straight strong leg, slightly concave on the outside. Well-defined median ridge with deep impressions. Bluish grey ware.

Pl. 5,1 (K. 3054: 29), 5,2 (K. 3054: 27), 5,3 (K. 6335) Loc. XV, 5,7 (K. 3054: 22). These are four specimens which in shape are closely inter-related. The ware is coarse, brownish brick-red. They are all triangularly tapering towards the foot. They are fairly strongly convex inside. Their mostly flat exterior carries three (in the case of Pl. 5,1 four) longitudinal ridges with finger impressions. In addition, Pl. 5,3 has, high up at the base, two very deep impressions between the ridges.

Pl. 3,3 (K. 3054: 33). This leg broadens at the foot into a spade-like shape but high up at the base it thickens. At the base there is a short median ridge beneath which is a large impression.

Ware brown, surface of the leg the same brown as the ware, but the vessel itself seems to have been black both inside and outside.

Pl. 3,4 (K. 3054: 4). In shape like Pl. 3,3 both in its lateral widening below and in its thickening above.

Ware dark grey.

Pl. 6,1 a and b (K. 3054: 23). This leg is like the preceding one. Ware brownish grey.

Pl. 6,2 a and b (K. 3054: 19). A leg very narrowly compressed laterally but unusually expanded at the base in a radial direction.

Ware grey.

Pl. 6,4 (K. 3040: 1). Loc. XI. An entirely undecorated leg, extremely compressed laterally and largely expanded radially. Ware blackish grey.

Pl. 6,3 (K. 3054: 16). A leg with the same elegant curve as Pl. 5,4, though much smaller, is here shown both from the outside and from the side. Its median ridge is short, only reaching to a little more than half the length of the leg.

Urns.

Pl. 10,2 (K. 6550). Low urn with wide mouth. Surface smooth except for traces of scraping. The inside rather irregular. A hand-made vessel. 25 mm. broad flaring rim. Ware brick-red.

Height 155 mm. Outside diameter of the mouth 208 mm. Outside diameter of bottom 107 mm.

Pl. 10,4 (K. 6259). Very irregular and rugged urn pale grey in colour. The surface shows everywhere traces of the smearing action by which this vessel was shaped. Height 150 mm. Outer diameter of mouth 150 mm. Flaring rim 18 mm. broad.

Pl. 9,4 (K. 6401). Large urn with wide mouth and a 28 mm. broad flaring rim.

Ware chocolate-coloured. Thickness of wall 5—8 mm. Collar smooth but all the rest of the outside covered with a nearly horizontal linear basket pattern. At slightly more than half the height there is a horizontal clay band, which at two opposite places widens into a bracket-shaped, deeply indented handle.

Height 276 mm. Outer diam. of mouth 250 mm.

Pl. 10,3 (K. 6090). Nearly cylindrical urn, grey ware. Thickness of wall 5—6 mm. Outside covered with horizontal-oblique basket pattern. A little below half the height of the wall there is an attached clay band and another more obscure clay band below the collar. Collar 24 mm. broad, slightly flaring. Abundant incrustations on the inside.

Height 225 mm. Width of the collar, which is the widest part of the vessel, 169 mm.

Pl. 9,1 (K. 6562). Near loc. IV.

Pear-shaped pot with the widest part above half its height.

Brown ware. Thickness of wall 6 mm.

Both the inside and the outside rugged, without any specific pattern. 4 cm. below the base of the collar there is a narrow attached clay band with finger prints.

Collar very narrow. 16 mm., flaring.

Pl. 8,4 (K. 6416). A coarsely hand-made irregularly pear-shaped vessel with a narrow flaring rim, 25 mm. broad.

The outside shows two widely different patterns, the one superimposed upon the other. From close beneath the collar and all the way down to 45 mm. above the bottom there are traces of a linear basket pattern, nearly horizontal at the top and oblique below. This pattern is largely obliterated by a superposed vertical mat impression. It is worth mentioning that in certain spots the basket impression seems to be the later of the two. The effect is somewhat confusing. Above these two intersecting patterns there run three horizontal superimposed clay bands with shallow finger-prints. One is 6.5 cm. below the margin, the second slightly below half the height and the third 6 cm. above the bottom.

Height 272 mm. Outer diameter at the widest part 238 mm.

Pl. 9,2 (K. 6422). »Pai's pocket». A smaller urn, very like Pl. 8,4. Here there is only one pattern, namely a crisscross basket impression. On this vessel there are four superimposed clay bands, one at the base of the collar, two at and below the widest part and one at the bottom.

Ware reddish brown.

Height 182 mm. Max. diameter 167 mm. Outer diam. of the mouth 154 mm.

Pl. 8,3 (K. 5927). A very small urn, in shape resembling the three preceding ones. A slight oblique basket pattern covers the outside. Superimposed over this pattern are three concentric angularly sharp ridges. Vessel hand-made, but collar with evident signs of rotary action. Height 112 mm. Max. diameter 118 mm. Outer diameter of mouth 116 mm.

Pl. 11,3 (K. 6412). Very small and coarsely made urn with narrow and nearly horizontal collar. Height 69 mm. Outer diam. of mouth 80 mm.

Pl. 9,3 (K. 5522). Reproduced in »Early Chinese Culture» Pl. XV,7. Narrow-necked hand-made vase. Ware brownish brick-red. Surface yellowish brown. The lower half (or a little more) of the outer surface has an almost obliterated basket pattern. The upper part scraped smooth.

Height 306 mm.; diam. of mouth 117 mm.; diam. of bottom 88 mm.

Pl. 8,1 (K. 6352). Loc. IV. Urn with high collar. Ware grey to brown. Thickness of wall 5 mm.

The outside has a vertical basket pattern and above the equator some irregular horizontal incised lines. Near the bottom and below the collar the outside is smoothed by rotary striation.

Height of collar 50 mm. Diameter of mouth 117 mm. Height of vessel 125 mm. Widest diameter 167 mm.

Pl. 8,2 (K. 6222). An urn of nearly globular shape with a high flaring collar. Ware brown, surface brownish grey, smoothed by scraping and smearing.

Height 183 mm., max. diam. 173 mm., diam. of mouth 112 mm., diam. of bottom 77 mm.

Pl. 11,2 (K. 6154). Loc. IV. Reproduced in »Early Chinese Culture», Pl. XVI,7.

Ware reddish-brown. Fragments of a small pot characterized by deep and distinct mat impressions covering the whole of the outside, except the collar and a narrow zone at the bottom, which are smooth.

Height 115 mm., diam. of mouth 87 mm. Height of nearly vertical collar 19 mm.

Pl. 11,4 (K. 6347). Loc. XII. Small very high-necked urn.

Height 130 mm. Body 63 mm. high, collar 67 mm.

Pl. 11,1 (K. 6551). Bought in Yang Shao Tsun. Small urn with very high collar and depressed, strongly profiled body. One lug.

Ware brown, surface grey, smooth, tending to polish.

Height 77 mm.; height of collar 42 mm. Max. diam. 94 mm. Diam. of mouth 77 mm.

Pl. 12,6 (K. 6311). Loc. XII. Lower part of a small urn. Ware brownish grey. Thickness of wall 3 mm. Both the inside and the outside blackened but not sufficiently

so to assign the specimen to the typical »black pottery«. A very minute part of the base of the collar is preserved, showing that the collar, like the upper part of the body, was smooth. The lower part of the body has a rhombic basket pattern, roughly smoothed at the base.

Pl. 23,1 (K. 3188). Collar and small part of the body of a large vessel. As the lower part is missing, we cannot with any certainty determine the type of the vessel. The general aspect of this fine fragment recalls the shape of an unusually large Li tripod, much larger in fact than any Li actually known from this period. The shape of the collar and the coarse mat impression upon the body are features familiar to the Li. However, the absence of a handle contradicts this assumption. Probably this was a big urn.

The ware is the usual brown of the »black pottery« and the vessel seems to have been blackened both inside and outside. Thickness of wall 5—6 mm. Vessel hand-made. The inside very irregular, the outside covered by a deep, regular mat impression, which once covered the collar also, where, however, it is now largely obliterated.

Pl. 12,2 (K. 3040: 7). Loc. XI. Fragment of an urn showing wheel-action both inside and outside. Ware grey, surface dark grey.

Pl. 12,7 (K. 6437). Fragment of a small vessel of grey ware and marks of wheel-action. Wall thick, 5—7 mm.

Pl. 18,4 (K. 6465) is a marginal fragment resembling in general outline Pl. 18,3.

The ware is very coarse with big rock-grains. In colour it is variegated, reddish brown to grey. The wall is exceedingly thick, 8—12 mm.

Above the »equator« the surface is marked by broad concentric ridges and furrows. Beneath the »equator« there is a pattern of oblique impressed string-lines.

Pl. 33,4 (K. 3014: 159). Fragment of an urn, which must have been very broad.

Ware chocolate brown, surface black. Wall 4—6 mm. Collar nearly vertical. The outside of the body covered with rectangular basket pattern.

Pl. 35,5 (K. 6311). Small urn.

Greyish-brown ware. Wall 3 mm. Surface blackish, mostly smooth, but with a belt consisting of rhomboidal basket pattern.

Grey vessels with pointed bottom.

Pl. 22,2 (K. 6424). Collected in »Pai's pocket« 1922.

Already described in »Prehistory« p. 230, but here reproduced for the purpose of comparison with the following specimen.

In K. 6424 the whole collar is genuine. It is trumpet-shaped, widening towards the top with the edge slightly thickened.

Thickness of wall 6 mm. Abundant lime incrustations on the inside.

The bottom is genuine to more than one third of the height of the vessel. It consists of six pieces, which were successfully fitted together. It is decorated with oblique basket-pattern, which very likely covered the entire body of the vessel to the base of the collar.

Diameter 306 mm. Diameter of collar 132 mm. Height 548 mm.

Pl. 22,1 (K. 6425). »Pai's pocket« 1922.

The general observations on K. 6424 in »Prehistory« p. 230 refer also to this specimen.

In this case the bottom is altogether a reconstruction based on the material of fragmentary bottoms in our collection. Here not only the collar but the whole of the upper part of the vessel down to two-thirds of its height is based upon actually fitting fragments.

The collar is of exactly the same shape as K. 6424. Thickness of wall 6 mm. The outer surface covered by oblique basket pattern. Shape of the vessel slightly irregular.

A distinct difference should be noted in shape between K. 6424 and K. 6425, the former being more slender and pointed, the latter more square-built in the upper part and obtusely pointed. This difference in shape is well documented by the available genuine old parts.

Diam. of collar 114 mm. Diam. of body 294 mm. Height 538 mm.

Obtusely pointed vessels with supporting ring.

Pl. 23,2 a and b (K. 6323). Loc. XI. A number of fragments from this locality, very similar in ware and shape, were found to fit together to form two groups, K. 6323 a and b. Between those two big fragments there are no actual fittings but they agree in detail to such an extent that there hardly remains any doubt that they once belonged to the same vessel.

Ware brown. The substance with which both the inside and the outside were blackened has penetrated to some depth.

The vessel is very coarsely hand-made with a rugged and irregular interior. The outside is covered with a very confused mat impression. The margin is slightly and irregularly thickened.

The bottom is obtusely pointed. To it was attached a clay ring, which served to support the standing vessel.

Pl. 23,3 (K. 6322). Loc. VIII, a.

The lower part of a vessel like Pl. 23,2 but bigger. Ware coarse, grey in colour. Also surface grey. Wall 5—7 mm. Vessel roughly hand-made. Outside covered with coarse mat-impression, which is traversed at two levels by concentric incised lines.

At the bottom there are distinct traces of the clay-ring that once supported the vessel. Height 142 mm. Diam. of mouth 96 mm.

Tumblers.

Pl. 12,9 (K. 5902: 8). Reproduced in »Early Chinese Culture» VII,4.

Pale-grey ware and surface. Thickness of wall 4 mm. The bottom and outside indicate wheel-technique, the inside is rough and irregular. The outside is smoothed with a slight polish. On the side-wall near the base are four broad irregular incised furrows.

Pl. 12,8 (K. 6238). Another shape of tumbler with an upper cylindrical part and a lower part, less than one third, which is narrower with a slightly set-off foot. The cylindrical surface is roughly smoothed with a slight polish. The lower constricted part has a rough surface.

Ware and surface grey.

Height 117 mm. Diam. 110 mm.

Pl. 11,5 (K. 6565). Near loc. XII. This is a most remarkable utensil, which is here described together with the two previous ones.

Ware and surface grey. Vessel probably wheel-made, light and thin-walled. The main

part is cylindrical, but the mouth is elegantly constricted in a fashion that rather suggests that there was a lid to the vessel. The vessel is also slightly constricted at the bottom. There is one big lug. Whether there was one on the other side we cannot determine as that part of the vessel is all reconstruction.

The cylindrical part of the side-wall is decorated with diagonal short cuts, and across this pattern run two very regular flat furrows impressed in the still soft clay. The upper of these furrows is on a level with the upper attachment of the handle, and the lower one slightly above the lower attachment.

Jar.

Pl. 34,2 (K. 3028:12). Marginal fragment of a big jar. Ware grey. Wall 6—9 mm. thick. Margin 24 mm. thick. Part of this thickening is due to the superposition of two clay bands on the outside.

Outside covered with a relatively fine but very irregular mat impression.

Cooking stoves?

We know very little about how the ancient Yang Shao dwellers did their cooking. One instance has been discussed in the Pu Chao Chai monograph, in which the existence of a »Hsien» in the Yang Shao period is suggested by combining a specially constructed Li tripod and an urn with perforated bottom (Pu Chao Chai monograph Pl. 90). See also »Prehistory», p. 259—260.

Another instance, this time from Yang Shao Tsun, is presented in Pl. 21,1 (K. 5925). This remarkable specimen has already been described in »An Early Chinese Culture» XVII,3. I here quote the description given in that paper:

»This is a fragment of a vessel of conspicuous and complicated shape. The ware is grey, 5—7 mm. thick.

In the upper part the vessel is a simple pot, the bottom of which was probably slightly rounded, as indicated by the figure. From the side of this pot an outer wall extends downwards in a vertical direction. At the very joint-line of these two walls, the outer one is pierced by big oval holes, probably six in number. Round these holes the walls are a sooty black, a fact that induces me to believe that the vessel was a kind of cooking stove, in which the holes permitted the smoke to escape. The lower part of the vessel, with an assumed opening for the admission of the fuel, is a mere reconstruction.»

Since then the specimen has been reconstructed as far down as the existing material allows. I still hold it to be highly probable that there was an opening near the base, as indicated in »An Early Chinese Culture», and consequently I maintain that the vessel was probably a cooking utensil.

It has one (probably two) knobs to serve as handles not far below the margin. It became still more apparent after the reconstruction that the six holes (two of which are preserved in the original) had served as vents for smoke.

Fragments of two similar vessels have been found among the extensive Yang Shao Tsun material. One is 21,2 (K. 6427).

The ware is grey. Wall 5—8 mm thick.

To the right, at the lower edge of the fragment, is visible one of the smoke-holes placed in the same relation to the double wall as in Pl. 21,1. The wall has a mat impression like Pl. 21,1 but the upper part of this pattern is smoothed away. This specimen carries the two scars of a horizontally placed handle, probably like that of Pl. 34,4.

Pl. 34,4 (K. 6440) is the third fragment that may belong to this type. It belongs to a big and heavy vessel of which only a small part is preserved. In this case the upper part was shallow, with the heavy and broad handle just below the margin.

Only the junction of the outer and inner walls is preserved.

Ware brown. Wall 10—12 mm. thick.

Bowls and basins

Pl. 13,1 (K. 6391). Small hand-made bowl. Both the inside and the outside scraped fairly smooth and slightly polished. Height 34 mm. Max. diam. 101 mm.

Pl. 13,3 (K. 6215). Small, relatively high bowl of dark grey ware.
Height 55 mm. Diam. 118 mm. Wall 5 mm.

Pl. 13,4 (K. 6400). »Pai's pocket«. Small simple bowl with brown to black surface. Height 45 mm. Diam. 124 mm.

Pl. 13,5 (K. 6227). Small simple bowl. Ware brownish grey. Thickness of wall 4—5 mm. Margin simple, thin (see section). Both the inside and the outside smoothed with slight polish. The entire outside and the upper part of the inside blackened. Bottom of the inside reddish.

Height of bowl 44 mm., diam. 126 mm. No set-off foot. Bottom area slightly concave, 55 mm. in diam.

Pl. 13,2 (K. 5898). »Pai's pocket.« Original »Early Chinese Culture« VII, 3. Medium-sized bowl with straight edge, which is thickened inwards. Ware dark-grey. Thickness of wall 4 mm. Vessel hand-made. Of the outside wall, the upper part is polished, the lower part scraped. The inside is more irregular. Height 94 mm. Diam. of mouth 212 mm. Diam. of bottom 78 mm. Profile of wall convex in upper part; nearly straight in lower part.

Pl. 15,1 (K. 5933). Restored fragment of a medium-sized, relatively high bowl. Ware dark grey. Thickness of wall 6 mm. Both the inside and the outside irregular, with striations in various directions. Lime incrustations on both interior and exterior. Height of bowl approximately 54 mm. Diam. approx. 177 mm.

Pl. 15,2 (K. 6419). Very irregularly hand-made bowl. Ware grey. Both inside and outside surfaces very rough. Height 63 mm. diam. 153 mm.

Pl. 15,3 (K. 6230). Thick, very irregularly hand-made bowl. Ware brick-red, very coarse. Full of deep furrows both inside and outside. Height 81 mm. Diam. 132 mm.

Pl. 15,5 (K. 6228). Ware grey, very coarse. Bowl with a spout bridged over by the margin. The outside covered by a nearly horizontal basket impression. Margin decorated with an oblique impression both inside and outside. The inside of the vessel decorated in quite a unique way: broad furrows have been incised, probably with a small wooden peg. A few of these furrows are relatively long and nearly horizontal. Numerous short furrows run obliquely, and the two systems form an irregular pattern, a small part of which is shown in the figure.

Height 69 mm. Diam. 178 mm.

Pl. 17,1 (K. 6219). Big high bowl. Fine grey ware. Hand-made, but the outer surface smoothed. Height 90 mm. Diam. 172 mm.

Pl. 16,1 (K. 6417). »Pai's pocket».

Basin with irregularly concave wall profile. Ware greyish-brown. Thickness of wall 8 mm. Vessel hand-made, rather irregular, with big cavities on the inside. Surface of the outside largely scaled off, but the upper part smoothed with fine concentric striations. In the inside is a concentric impressed line. On the upper half of the inside is a broad and shallow horizontal line. Above this, fine horizontal striations; below it, fine oblique striations, apparently made in the soft clay. Margin straight and simple. Height 95 mm. Diam. of mouth 303. Diam. of bottom 110.

K. 6403. Fragment of high bowl. Ware brownish grey, very coarse and containing numerous grains of quartz. On the outside is an indistinct, nearly horizontal basket pattern; on the inside fine striations, mostly horizontal. Margin broadened. Height approximately 126 mm.

Pl. 15,4 (K. 6392 a). Bowl with simple mouth, straight side and a crenelated band round the bottom. Height 60 mm, diam. 147 mm.

Pl. 14,5 (K. 6392). Fragment of a bowl of reddish grey ware. Thickness of wall 6 mm. Margin square cut. The inside and outside rugged.

Slightly set-off foot, 6 mm high, 89 mm. in diameter. Bottom-area flat. Margin of bottom with numerous narrow indentations. Height of bowl 59 mm. Diam. approximately 202 mm.

Pl. 14,2 (K. 6337). Near loc. VII.

Medium-sized bowl, grey ware. Inner surface irregular and rugged. Outer surface with horizontal basket pattern. Wall 8 mm. thick. Set-off foot with narrow impression, 12 mm. high, 69 mm. in diam. Height of bowl 55 mm. Diam. approximately 157 mm.

Pl. 14,1 (K. 6330). Loc. XV.

Bowl on a relatively high foot. The outside is rough with deep scratches in the clay, the inside covered with the marks of very regular wheel-action.

Foot 18 mm. high, with a few irregular indentations.

Height of vessel 54 mm. Diam. 148 mm.

Pl. 14,3 (K. 6252). Small bowl of dark grey ware. Wall 4—5 mm. in thickness. Regularly conical vessel, showing everywhere marks of wheel-action. Bottom slightly set off.

Height 55 mm. Diam. 133 mm.

Pl. 14,6 (K. 6235). Small bowl with distinctly set-off, 13 mm. high bottom. Ware brownish grey. Thickness of wall 10 mm. Both the inside and the outside irregular, rugged and granulated owing to protruding mineral grains. Height 57 mm. Diam. approximately 150 mm. Diam. of foot 59 mm.

Pl. 14,4 (K. 6221). Small bowl of reddish-grey ware. Wall 9—10 mm. thick. Both the inside and the outside showing traces of wheel-action. The inside divided off into a central small deep cavity and a broad shallow marginal zone.

Height 37 mm. Diam. 139 mm.

K. 6331. Loc. XV. Small bowl with very thick wall and a high set-off bottom, 7 mm. high. Thickness of wall in lower part 15 mm. Thickness of bottom 10 mm. Ware brownish grey, porous. The outside shows slight traces of a somewhat irregular rotary action.

The inside looks as if it had been wheel-made, with quite fine and regular concentric striations. It consists of a central deep cavity, 65 mm. in diam., and a kind of rim 28 mm broad. Height 36 mm. Diam. 118 mm. Diam. of bottom 73 mm.

K. 6363. Small bowl with set-off foot, 12 mm. high. Ware brownish with only a few mineral grains. Thickness of wall 8 mm. Thickness of bottom 12 mm. Both the inside and the outside smoothed with fine striations. Height 47 mm. Diam. 130 mm. Diam. of bottom 75 mm.

K. 6231. Fragmentary small bowl, grey ware. Thickness of wall 2.5 mm. A well set-off foot, 6 mm. high. Both the inside and the outside showing marks of wheel-like rotary action. On the inside a narrow rim, 4 mm. broad.

K. 6409. Small bowl with set-off foot, 9 mm. high. Ware brownish grey. Thickness of wall 6 mm. Margin slightly thickened inwards. The inner and outer surface rugged.

Pl. 16,2 (K. 6247). »Pai's pocket».

Basin of reddish-brown, unusually coarse sandy ware. Flaring rim 46 mm. broad. Thickness of wall 7 mm. Hand-made. Both the inside and the outside showing an oblique spiral design caused by some obscure basket-pattern, or by the spiral-action of the hand when forming the vessel. The inside seems strongly to support the second theory. Rim with fine concentric striations. Height 96 mm. Outside diam. of mouth 307 mm. Inside diam. 225 mm. Diam. of bottom 120 mm.

Pl. 16,3 (K. 6591). »Pai's pocket».

Reconstructed fragment of flat bowl with very broad flaring rim and convex wall profile. Hand-made. On the outside an attached band 15 mm. broad. The inside surface relatively smooth, brownish with fine concentric striations; the outside surface very rugged, blackish. Rim 66 mm. broad, slightly protruding inwards. Height 84 mm. Outer diam. of mouth approximately 350 mm. Diam. of central space 223 mm. Diam. of bottom approximately 130 mm.

Pl. 18,2 (K. 6396). Basin. Ware reddish brown. Wall 7—9 mm. Inside shiny black, outside dark grey. Outer surface irregular and rugged with striations in various directions. Inner surface also irregular with abundant traces of having been modelled in the soft clay. The interior consists of the wall and a distinctly set-off rim, 3 cm. broad, which is well demarcated from the central part of the vessel by means of a slightly raised ridge. Height 67 mm. Diameter of basin 252 mm. Diam. of bottom 92 mm.

Pl. 18,1 (K. 5902: 7). Very small basin, hand-made. Already reproduced in »An early Chinese culture» XVI,3.

Ware fine, greyish-brown. Both the inside and the outside scraped and slightly polished. Surface brownish-grey. Foot set-off and a keeled ridge on the lower part of the outside. Height 69 mm., diam. 224 mm.

Pl. 17,2 (K. 6251). »Pai's pocket».

Big high bowl. Profile of side straight in the lower and slightly convex in the upper part. Margin flatly thickened. Grey ware. Thickness of wall 6 mm. Vessel irregularly

hand-made. This vessel is interesting because it shows very clearly how the formation of a smooth surface was attempted by applying to the coarse surface of the vessel a fine grey slip, a process, however, which in this case was never completed. Height 169 mm. Outside diam. of mouth 337 mm. Inside diam. 295 mm. Diam. of bottom 130 mm.

Pl. 17,3 (K. 6246). Big high bowl. Ware brick-red. Wall 5—10 mm. in thickness. Profile of body slightly convex. Height 148 mm. Diam. 335 mm. Flaring rim 28 mm. broad.

Pl. 20,1 (K. 6405). High basin. Ware greyish-brown. Wall 7—9 mm.

Hand-made. Horizontal ridge-shaped handle with four deep indentations. Profile slightly convex. Height 126 mm. Diam. 224 mm. Rim 10 mm. broad.

Pl. 20,3 (K. 6398). »Pai's pocket».

Big bowl with rounded edge thickened outwards. Ware pale grey. Thickness of the wall 5—6 mm. Vessel coarse, hand-made. The surface of the outside shows in lower part fine straw impressions, in upper part a horizontal basket impression. The inside surface somewhat smoothened, in the upper part with broad and shallow lines, some long and horizontal, some short and oblique, possibly forming some kind of decorative pattern (compare Pl. 15,5). The thickened margin 15 mm. broad, showing on the surface the basket pattern of the wall below. Profile of the vessel slightly convex. Slightly above half its height, a horizontal ridge-like handle with three deep finger impressions. There was most probably a corresponding handle on the other missing side. Extending between the handles a narrow raised ridge. Height 147 mm. Diam. of mouth 287 mm. Diam. of bottom 115 mm.

Pl. 20,2 a and b (K. 6549). High bowl.

Ware in the centre grey, 2 mm. surface layer brick-red. Wall 5—7 mm. thick.

Margin thickened outwards. Profile of the vessel slightly convex. Horizontal rib-like handle with indentations. The small original sherd shows part of the contour of two holes in the bottom. This observation leads us to believe that the bottom was perforated with holes as shown in the reconstruction 2 b, making the vessel a kind of colander.

Height 123 mm. Diam. 245 mm.

Cups and lids.

Pl. 19,1 (K. 6232). This is a tiny object, a miniature of a bowl similar to that shown in Pl. 14,1. Its cavity is so small and its »foot» so slender that it is tempting to regard it rather as a lid than as a miniature bowl. This interpretation is supported by the fact that the convex side with the knob is smooth and polished, whereas the concave side merely shows the concentric marks of the wheel-action that shaped this little thing.

Height 32 mm, diam. 78 mm.

Pl. 19,2 (K. 6395). This specimen is bigger than Pl. 19,1 and much coarser. It may possibly have been not a lid but a very small bowl, something like Pl. 14,6. Height 43 mm., diam. 94 mm.

Pl. 19,3 (K. 6233). A small cup of pale brick-red ware. Crudely hand-made. Height 41 mm., diam. 67 mm.

Pl. 19,4 (K. 6232). Small conical cup of brick-red ware. Height 47 mm., diam. 82 mm.

Pl. 19,5 (K. 6500). Wheel-made cup with a big lug. Ware grey. Height 82 mm., diam. 123 mm.

Pl. 19,6 (K. 5902: 2). Coarsely hand-made cup with lug. Ware brown. (Reproduced in »Early Chinese Culture» XV,5). Height 68 mm., diam. 110 mm.

Pl. 33,8 (K. 5902:3). Repr. in »Early Chinese Culture» XV,3.
Tiny mug with very big handle. Crude and irregular handwork. Height 57 mm., diam. 59 mm.

Pl. 33,10 (K. 6234). Small cup or urn (?), very coarse and irregular. Height 57 mm., diam. 58 mm.

Pl. 33,7 (K. 6407). Miniature vessel or toy. Ware brown. Wall very thick. Height 41 mm., diam. at the bottom 43 mm.

Pl. 33,1 (K. 6443). Small mug with flaring rim. Ware brown. Thick-walled. Bottom part compressed by large fingerprints. Height 60 mm.

Pl. 32,6 (K. 6256). Small cup, nearly cylindrical but slightly narrower near the mouth. Ware chocolate-brown, surface black.

Pl. 32,8 (K. 6406). Fragment of small cup. Ware and surface reddish-brown. Vessel very irregular.

Pl. 32,13 (K. 6236). A strange vessel, oval in horizontal section. Ware brown, surface grey. On the underside of the bottom there are five deep, irregular pits, of which the middle one perforates the bottom in two places.

Pl. 33,12 (K. 3033: 3). Loc. XII 388—490 cm. Wall brown. Surface nearly black. Wall 3—5 mm. thick. Fragment of a cup or a lid.

High-footed pieces.

We shall now describe a group of very characteristic vessels, but first some introductory words on terminology are desirable.

The first prehistoric specimen of this type to be described was reproduced by me in 1923 in »An early Chinese culture» p. 62 and Pl. XV,2. This is the same specimen as Pl. 28,1 (K. 5902: 4) of the present paper. It was described as a »high-footed piece, with the hollow foot supporting a basin-shaped vessel.»

In the very important monograph on the Cheng-Tzu-Yai site in Shantung, Nanking 1934, the authors describe a »Class III (large mouth with one support), which is subdivided into five types, the first and most important of which is type I, offering-stands or lamps of Tou type». Mr Wu undertook to make a special study of these »stands» and was able to distinguish seven types (l. c. p. 60). Four of these types agree very well with the Tou of the early dynasties. But the third in order of the figures on P. 60 is a typical Ku, as we know this type from the Anyang bronzes. Undoubtedly a specimen

like our Pl. 28,1 is rather a Tou, a bowl carried by a high stem, though only a slight modification of the upper half of its vertical profile would turn it into a Ku. It even seems quite possible that both the Tou and the Ku have developed out of a vessel like Pl. 28,1.

Just as the authors of «Cheng-tzu-yai» use their Class III (large mouth with one support) to embrace such disparate objects as Tou, Min, «fruitstands» and «mortars», I shall here continue to use my simple term «high-footed pieces» to include a number of types from Pl. 28,1 to a small «mortar».

Pl. 28,1 (K. 5902: 4). «Early Chinese Culture» XV,2.

Ware brown, fine. Thickness 3.5—6 mm. High-footed piece, with the hollow foot supporting a basin-shaped vessel. The foot is perforated with seven holes, 20—23 mm. in diam. The upper basin-shaped part is decorated on the outside with a keeled horizontal ridge. The inside of the basin is set-off in two parts, a marginal, gently sloping zone and a central deeper, bowl-shaped part. Surface scraped smooth. No distinct signs of wheel-work.

Height 215 mm., diam. of basin-shaped upper part 202 mm.

Pl. 28,2 (K. 6477, K. 3044: 46, 55). Three sherds which do not fit together, but which almost certainly belong to one vessel. The ware is exactly the same, the thickness of the wall is identical and both the inside and the outside of all three sherds are smeared over with an ochre-yellow paste which we know only from this Yang Shao vessel. Only two of these sherds have been used for the tentative reconstruction 28,2.

Ware grey, very hard. Thickness of wall 5.5 mm. The outside smoothed and moderately polished. Locally the outside retains traces of that strange ochre coating which covers all the holes and the entire inside. This coating cannot very well be compared with the slip of many other vessels.

The reconstruction may be assumed to be fairly safe in its lower half, though even here there are doubtful points. In the upper sherd the holes are inclined to the right, whereas in the lower sherd one at least is inclined to the left. The upper half of the reconstruction is a mere copy of Pl. 28,1.

There were two vertical rows of holes in the lower half, but a hole to the left of the figure indicates that there were one or more holes in the other quadrants.

Pl. 29,1—4 (K. 6435, K. 6434, K. 6214, K. 6433) are a group of vessels which in general outline resemble 28,1 but are lower and stouter. Pl. 29,4 is a very broad specimen, which closely resembles XXIV,2 of the Cheng-tzu-yai report. The ware is grey in all the four specimens. The thickness of the wall is only 4 mm. in 29,1, but in the others it is 5—7 mm. Wheel-action is very evident in 2 and 4, less prominent or absent in the two others. Pl. 29,1 has 4 holes near the base.

Pl. 35,9 (K. 6324). Loc. XI.

Fragment of the base (?) of a high-footed vessel. Ware brown, wall 4—5 mm.

In external shape this fragment resembles the base of Pl. 28,1, but there is a fundamental difference. Pl. 28,1 is open at the bottom, as is also the case with all the other vessels shown in plates 28 and 29, but 35,9 has a flat bottom plate, upon which it rests.

There seems to have been a handle-base at the base of the narrow part. There are traces of a black coating over the outside.

Pl. 30,2 (K. 3014: 123). This is the first specimen in a group of high-footed pieces which seem to belong to the Tou group, viz. a small bowl supported on a high cylindrical

stem. In this case the problem «up or down?» is easily solved, as the end turned down in the figure has a flat rough foot surface, with a hole in the centre.

Ware brown. Wall 6 mm. thick. Surface blackened. The cylindrical stem shows traces of an oblique basket pattern.

Pl. 30,1 (K. 3014: 114). Here also the position of the fragment is settled by the fact that the expanded part turned upwards in the figure is the central part of the bowl supported by the stem.

Ware brownish grey, surface grey. Wall 4—7 mm. The cylindrical stem is perforated with big holes arranged in 4 or more vertical rows.

Pl. 30,5 (K. 3014: 110). Ware brown. Surface grey, smoothened by scraping. Wall 6—7 mm. in thickness.

The cylindrical stem is trumpet-shaped in its lowest part. Of the bowl only a very small fragment is preserved.

Pl. 30,7 (K. 3014: 120). Ware brown. Surface dark grey, smooth with slight polish. Wall 5 mm. thick.

The cylindrical part of the stem is discretely decorated with a broad rounded furrow and a number of very gentle ridges, all distinctly shown in the figure. The central part of the top-bowl is preserved.

Pl. 30,4 (K. 6375). The cylindrical part of a Tou. Ware grey to brown. Surface black with high polish.

Bottom fragmentary. Top-bowl missing. Round the lower part of the stem a rounded ridge.

Pl. 30,3 (K. 6351). Loc. IV,1. Fragment of a Tou connected with both Pl. 30,5 and Pl. 30,7. In common with the former it had the trumpet-shaped base (not shown in the figure). With Pl. 30,7 it has in common the concentric, impressed furrows. Ware brown. Surface deep black with polish. Wall only 3 mm. in thickness. Base missing. Centre of top-bowl preserved.

Pl. 30,8 (K. 3014: 73). A low, broad type of the Tou-Ku group.

Ware brownish grey. Surface dull, light-grey. The entire vessel is wheel-made. A considerable part of the bottom of the top-bowl is preserved. Diam. of the base 100 mm.

Pl. 30,10 (K. 3014: 122). Fragment of a broad high-footed piece, probably a Kuei. Ware brown. Surface black, shiny. Wall 7 mm.

Only the part that joins bowl and foot is preserved. The foot was, as far as can be judged, cylindrical. Only the bottom of the bowl is preserved. Its main feature is a somewhat irregular, but quite continuous, impressed spiral (fig. 12).

Pl. 33,5 (K. 6373). A miniature high-footed piece consisting of a bowl supported on a narrow, nearly cylindrical stem.

Ware and surface reddish brown. Height 76 mm. Diam. of bowl 90 mm.

Pl. 30,9 (K. 3014: 111). A very heavy piece which, to judge from its hollow foot, must have been placed as shown in fig. 13. Ware brown, surface dull, black. This



Fig. 12.

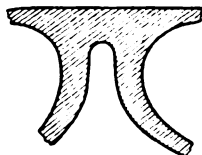


Fig. 13.

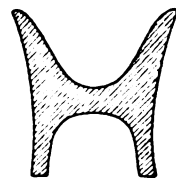


Fig. 14.

specimen is unique in showing that in the high-footed group there were stands with an entirely flat top-plate.

Pl. 30,6 (K. 3035: 3). Loc. IV. A small cylindrical vessel, possibly simply a cup. Cylindrical, with a flat bottom and a mouth with flaring rim. Half-way down the cylinder two deep furrows close together.

Ware dark brown. Surface deep black. Wall 6—7 mm. thick.

Pl. 10,1 (K. 6404). A cup-like object of very heavy build. Surface black. Wall 8 mm. thick. From both top and bottom there are deep cavities in the interior, as shown in the section fig. 14. The object is, however, much too heavy to have served as a drinking cup. Height 88 mm. Diam. of mouth appr. 89 mm.

Pl. 33,3 (K. 3014: 108). A very rugged and irregular object of the same heavy build as 10,1. The uppermost part is missing. Its shape inside is shown in section fig. 15. Ware and surface grey.

Pl. 35,8 (K. 6223). Another specimen like the two preceding ones. Ware brownish grey. Wall 8 mm. thick. As shown in the section fig. 16 the cavity at the top consists of a small central semi-globular basin and a shallow rim, 14 mm. broad.

Height 90 mm. Diam. at the top 77 mm. Diam. of bottom 63 mm.

Pl. 35,10 (K. 6258). Exceedingly heavy piece, thickness of wall 15 mm. Ware and surface grey.

Bottom missing. Interior cavity conical with a narrow bottom. The thickness of the wall would suggest that the vessel was used as a small mortar, but the narrowness of the lowest part of the cavity rather contradicts this suggestion (fig. 17).

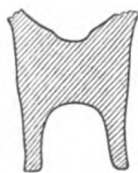


Fig. 15.

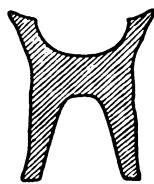


Fig. 16.

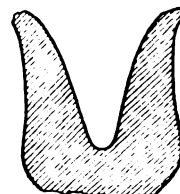


Fig. 17.

MISCELLANEOUS, MOSTLY GREY POTTERY.

Pl. 35, 1, 2, 3, 4, 7 (K. 6455, 6451, 3009: 26, 6454, 6452).

These five fragments represent practically all the kinds of ware we know from the Yang Shao Tsun site, but they have one feature in common, namely a pointed knob, which is bent downwards.

1 and 2 have a grey ware, 4 is also a pale grey, 3 is brick-red and 7 is the chocolate brown of the «black pottery». In this specimen the surface is not black but very dark grey.

1 is a fragment of a large vessel, probably a basin. The outside is covered with a nearly horizontal basket pattern. At the side of the knob there is a hole pierced straight through the wall of the vessel. Probably there was also a similar hole on the other side of the knob.

2 has a pair of knobs.

3 belongs to a brick-red basin.

7 was an urn or basin with narrow mouth.

4 has a long pointed knob between two holes, of which only one is pierced right through the wall. This observation is of some interest. Evidently the holes served no practical purpose. They were merely decorative; together with the long noselike knob they formed a face, making the vessel a kind of «Gesichtsurne» in the sense of the German term. As indicated above, 1 also formed a face.

Pl. 35,6 (K. 6320). A unique piece. The ware is the usual chocolate brown so often met with in this site.

In vertical section the piece is roughly biconical, though the underside is very irregular. The topside is of concentric build. In the centre is a quite smooth conical shield. Outside this shield is a zone decorated with impressed circles made with a hollow instrument, which left the core, in most cases, intact. Outside this zone is a smooth border belt.

Diameter 73 mm.

Pl. 32,12 (K. 6326). Loc. XII, 290—350 cm.

Half of a polisher. Ware yellowish grey. The side covered with short notches, possibly made with the finger nail. Bottom surface smoothed by wear.

Pl. 32,1 (K. 6471). An angular fragment, the true nature of which cannot be surmised. Ware reddish brown.

Pl. 32,5 (K. 6431). Spout of a very large vessel. Ware grey with white mineral spots. Thickness of wall 6 mm. The slightly thickened margin of the vessel forms an arch over the base of the spout.

Pl. 32,11 (K. 6429). Spout of small vessel. Ware brown.

Pl. 32,9 (K. 6430). Spout of small vessel. Grey ware.

Pl. 32,10 (K. 6432). Spout (?) with 7 sieve-holes. Ware brown. Surface grey, wall thick.

Pl. 32,3 (K. 6368). Loc. III 55—140 cm. This is the first of a series of three characteristic small objects.

Ware and surface brick-red. The piece is nearly cylindrical but slightly wider at both ends. One end slightly damaged. Surface smooth.

Pl. 32,2 (K. 6367). Bigger than the preceding specimen and one end narrower than the other. Surface yellowish grey. Smooth all over.

Pl. 32,4 (K. 6345). Loc. XII. 350 cm.

One end much narrower than the other. The surface of the broad end perforated with numerous deep holes. Surface black.

Pl. 34,5 (K. 6346). Loc. XII, 388—490 cm.

A queer small fragment. It is open in front, where it is cut straight. If it were symmetrical, it would have the shape of a small shovel. Ware and surface grey.

Pl. 33,9 (K. 3036: 4). Loc. II. 270—300.

A small fragment, probably from the upper part of an urn, with a unique pattern of crossing incised lines.

Pl. 12,4 (K. 3055: 16). A minute sherd of veritable «eggshell» pottery. Ware and surface light grey. Wall 1.5 mm. in thickness. Fragment of a high bowl or of a very delicate tumbler.

Pl. 34,3 (K. 6446). Marginal fragment of a large vessel. Ware brown, very coarse. Wall 8—11 mm. The inside very rough, the outside has an oblique basket pattern.

Part of a vertical handle.

The conspicuous feature is a straight vertical cut forming the right contour of the figure. This is certainly one of our mystery vessels!

Pl. 31,2 (K. 6426). Marginal fragment of a large vessel, probably a basin. Ware chocolate brown, very coarse. Wall 7—9 mm.

Rim bent inwards, smooth both inside and outside; below the rim a coarse mat-impression.

On the outside an irregular knob, probably used as a handle.

Pl. 36,2 (K. 6470). Marginal piece of a large vessel. Ware grey, coarse.

Pl. 36,8 (K. 3014: 13). Fragment of a large deep basin. Ware brownish grey. Wall 4—6 mm.

On the outside a superimposed clayband with a finger-impressed knob. The inside grey, the outside black, both smoothed by irregular rubbing.

Pl. 36,9 (K. 3014: 3). Marginal sherds of a large vessel with contracted mouth. Ware grey. Coarse diagonal string impressions.

BLACK POTTERY.

Some specimens of black pottery have already been described in the previous pages under the different form groups. But there remain a large number of specimens which are so exquisitely black or otherwise so noteworthy that they deserve to be described under one heading.

In this chapter were originally included a large number of specimens later published in »Prehistory» p. 67—70. They are:

K. 3014: 7;	K. 3014: 16;	K. 3014: 35;
K. 3014: 42;	K. 3014: 48;	K. 3044: 43;
K. 3055: 1;	K. 3055: 3;	K. 3055: 12;
K. 5902: 5;	K. 6227:	K. 6362;
K. 6402;	K. 6415;	K. 6446;
K. 6458;	K. 6463.	

For these specimens reference is made to the said publication.

The remaining specimens of black pottery are here briefly described.

Pl. 18,3 (K. 3055: 24). Fragment of bowl with profile sharply bent and contracted mouth. Ware brown. Wall 2—4 mm. thick. Surface nearly black but dull.

Pl. 12,5 (K. 3055: 5). Smaller fragment with profile sharply bent. Ware grey. Wall 2—3 mm. Colour dark grey, proving how black and grey pottery merge into one another.

Pl. 38,4 (K. 3009: 41). This is a very small fragment of the same type as the preceding one. Ware and surface brownish-grey. Wall 2—3 mm. thick. Nice polish.

Pl. 12,3 (K. 3055: 9). Fragment of a vessel resembling K. 3055: 3 (Prehistory 31,3) but cruder, hand-made. Ware brown. Wall 1.5—3 mm. Surface only slightly smoothened. Hardly any polish.

Pl. 12,1 (K. 6360). Fragment of high bowl with margin thickened outwards. Ware brownish grey. Wall 1.5—3 mm. Surface very dark grey. Polish very slight. Vessel wheel-made.

Pl. 31,5 (K. 3014: 33). Collar fragment of a big urn. Ware brown. Wall 3—4 mm. thick. Surface pitch black, but polish slight.

Pl. 31,1 (K. 3028: 1). Fragment of an urn (?) with wide mouth. Collar decorated with holes pierced through the wall while still soft. Ware variegated, brown to greenish grey in the centre. Wall 9 mm. thick. Traces of wheel-action. Surface black but dull.

Pl. 31,3 (K. 6459). An object, the shape of which is best gathered from the figure. This specimen has a flat base serving as a stand. /

Ware chocolate brown. Surface dull black. Height of specimen 120 mm.

In a special paper professor Karlgren has explained this object as a phallic symbol in relation to certain finds in the Mohenjodaro site in India. (BMFEA Vol. 14. P. 65—69) A similar object, K. 6458, is shown in Prehistory Pl. 30,1.

BRICK-RED POTTERY.

Several bowls, one urn (K. 6550) and one tripod (K. 3009: 67) of brick-red ware have been described in earlier parts of this monograph. Most of them were less decidedly brick-red than those which will be described now under the above heading.

Fragments of urns.

Pl. 38,2 (K. 3009: 54). Ware deep brick-red both inside and outside, surface brown. Wall 4 mm. thick. No sign of wheel-action, but the surface is well smoothened.

Pl. 37,6 (K. 3009: 46). The surface has exactly the same brown colour and smoothness as that of 38,2. But here only the lateral parts of the ware were burnt red, whereas the centre remained grey. Flaring rim 22 mm. broad. A narrow ridge over the widest part of the vessel.

Pl. 38,1 (K. 3009: 15). This must have been a graceful vessel to judge from its perfect design, specially the charmingly smooth deep-red slip. Wall 4—5 mm. thick. Flaring rim 21 mm.

Up to the rim this vessel is covered on the inside with double sheets of kettle fur.

Pl. 38,6 (K. 3056: 16). A very small fragment of a richly profiled vessel. Ware grey, but near the surface brick-red. Thickness of wall 5 mm.

Pl. 39,3 (K. 3056: 30). This is a marginal fragment of a very high basin or urn with wide mouth. Ware in centre dark grey, in parts entirely burnt brick-red. Wall 5—7 mm. thick. The outside covered with nearly horizontal basket pattern. Richly profiled flaring rim 34 mm. thick. 90 mm. below the collar a clay band with deep finger impressions.

Pl. 40,6 (K. 3056: 26). Marginal fragment of a bulging urn with wide mouth. Ware coarse, brick-red. Wall 4—5 mm. thick. The outside decorated with oblique string-lines, often running in pairs. These string-lines are crossed over by concentric, broad, shallow incised lines.

Pl. 36,3 (K. 3009: 38) is a fragment very like the preceding one.

Pl. 40,8 (K. 3056: 24) is less bulging than Pl. 40,6. The décor of the outside is much the same as that of the said specimen. In addition, there is an oblique clay band with finger-prints.

Pl. 36,5 (K. 3056: 23) is a small fragment of much the same type as Pl. 40,8.

Pl. 36,7 (K. 3056: 25) is a fragment of an urn probably resembling the four preceding ones, except that the surface décor is much more obscure and irregular.

Pl. 40,5 (K. 3009: 11) is a fragment of another bulging urn. The outside décor is much the same as that of 40,6, except that the string-lines in this case run from left to right. Ware brick-red. Wall 5 mm. thick.

Pl. 40,3 (K. 3009: 65). Marginal fragment of a moderately bulging urn. Ware grey, red only near the surface. Wall 7 mm. thick. The outside decorated only with irregular string-lines.

Jars.

Pl. 39,2 (K. 3056: 54). Fragment of a big jar. Coarse ware, brick-red all through. Wall 8—9 mm. thick.

The outside covered with nearly horizontal basket impressions, upon which there are superimposed two undecorated clay bands.

Pl. 39,1 (K. 3056: 28). Marginal fragment of another jar. The coarse ware grey in the centre, brick-red near the surfaces. Wall 7 mm. thick.

The outside covered with string-impressions slanting from left to right. Near the mouth the surface is smoothened, and at one place a horizontal lump of clay with deep finger-impressions is superimposed.

Basins.

Pl. 40,4 (K. 3009: 66). Marginal fragment of a basin. Ware brick-red all through. Wall 6—7 mm. thick. The outside undecorated, but a horizontal clay-lump with deep finger-impressions is superimposed.

Pl. 37,4 (K. 3009: 50). Fragment of a basin like the preceding one, but deeper. Centre of wall grey. A slight attempt at décor with some incised lines above the horizontal, lobated lump of clay.

Pl. 39,4 (K. 3056: 29). Marginal fragment of a basin with a flattened rim and the middle part of the side wall covered with deep horizontal furrows.

Pl. 37,2 (K. 3009: 43). Small fragment of a basin with smooth margin and string-lines running from right to left. Ware brick-red. Wall 6 mm. thick.

Pl. 39,6 (K. 3056: 27). This is the first of a group of basins with a bent rim set-off inwards. Originally the outside was covered with oblique string-lines running from left to right, but on the upper part of the side-wall horizontal lines have largely obliterated the string-lines. Ware brick-red. Wall 10—11 mm. thick.

Pl. 37,5 (K. 3056: 5). Fragment of a basin built like the preceding one but higher, with vertical side-wall.

Pl. 40,1 (K. 3009: 59). Fragment of a very heavy basin with the upper part of the side-wall vertical. This upper part of the side-wall regularly rifled with deep concentric furrows. Smooth rim bent inwards, 39 mm. broad.
Ware brick-red, wall 9 mm. thick.

Pl. 36,4 (K. 3056: 19). Fragment of a high basin with the upper part of the side-wall vertical. Base of the inward-curving rim decorated with indentations. Upper part of the side-wall smooth; below, broad horizontal furrows.
Ware brick-red, wall 6 mm. thick.

Pl. 40,7 (K. 3056: 7). Basin of same type as the preceding ones but side-wall smooth. Ware brick-red, wall 4 mm. thick.

Pl. 38,5 (K. 3056: 14). Basin like the previous one, but the rim more richly profiled.

Pl. 37,7 (K. 3056: 45). Bottom of a basin in which big holes were pierced before burning. Rare similar specimens have been found also in other sites.

Vessels with pointed bottom.

From all our extensive excavations at Yang Shao Tsun we have not been able to bring together any specimen comparable with the excellent reconstructions from Ho Yin Hsien, which have guided us in interpreting the numerous and very varied Yang Shao Tsun fragments.

Pl. 24,5 (K. 3056: 36). A mouth-piece of the most common type.

Ware grey in centre, burnt red near the surfaces.

Wall 5—6 mm. thick.

Outside diam. of mouth 90 mm. but owing to the construction of the mouth the actual opening was hardly 40 mm. in diam. Surface of the neck decorated with crossing string-lines and smooth lines.

Pl. 24,1 (K. 3056: 11) and Pl. 24,2 (K. 3056: 21) are closely related in shape.

Pl. 24,8 (K. 3056: 1). This is a heavy specimen of a unique type. There is a high, well set-off collar, truncatedly egg-shaped. This part is smooth, but lower down on the body there are impressed string-lines. Ware grey in the centre. A technically interesting feature is that the lower opening is much narrower, 40 mm., as compared with the opening at the top, 55 mm.

Pl. 24,3 (K. 3056: 2). This is still another type, truncatedly conical in shape. The top-opening is only 29 mm. in diam. The ware is dark brownish-grey in the centre, burnt red near the surface which, however, is itself light-grey.

Pl. 24,4 (K. 3056: 35). Half of the mouth of a small vessel with relatively smooth and simple profile. Fine horizontal striations, slightly irregular.

Pl. 24,7 (K. 3056: 3). Mouth of a large vessel similar to Pl. 24,5. Faint indications of diagonal string pattern, which is obliterated below by smooth, shallow pits.

Pl. 24,6 (K. 3023: 4). Loc. IV. 0.55—1.44 m. Surface quite smooth.

Pl. 36,6 (K. 3056: 53) and Pl. 36,1 (K. 3056: 52). The latter specimen is the original of «Early Chinese Culture» VII,1 (bottom). The pointed bottoms of vessels like those represented by the collars described above. In both fragments the ware is brick-red all through. Both specimens, but especially 1, show very clearly how the vessels were built up from spirally applied layers.

Miscellaneous brick-red pottery pieces.

Pl. 38,9 (K. 3009: 62).

A marginal fragment of an unusually thick-walled (16 mm.) vessel. The margin, 35 mm. broad, is smooth. Below it is a mat-impression of peculiar type.

In addition there are three sherds of similar types representing the lower part of this type of vessel.

Pl. 34,6 a and b (K. 3189: 1, 2). It is tempting to believe that these fragments belong to a vessel like the «mortar» described in the Cheng-tzu-yai monograph XXI,4, which has much the same mat-impression as our fragments. This complete specimen is 35 cm. high and the wall is 1—3 cm. thick.

Pl. 37,3 (K. 3056: 12). A small sherd round the base of a characteristic handle with two superimposed buttons. Ware brick-red, wall 4 mm. thick. Surface covered with oblique string-impressions.

Pl. 34,1 (K. 6436). A thin sherd both the inside and the outside of which are of a peculiar type.

Ware brick-red, wall 4 mm. wide. On the inside are small raised dots; the outside is covered with a whitish slip.

Pl. 38,7 (K. 3009: 13), 38,8 (K. 3056: 17), 38,10 (K. 3009: 53), 38,11 (K. 3056: 15). Small sherds with a peculiar décor. 7 with indentated margin. 8 with rows of deep fossae produced with a stick moved from right to left. 10 decorated with deep stitches produced with a thin wooden stick thrust from above into the soft clay. 11 small fragment of an urn decorated with concentric rows of small hillocks.

Pl. 38,3 (K. 3056: 49). Marginal sherd with outward-curving margin.

Pl. 37,1 (K. 3056: 13). Marginal sherd with outward-curving margin and fine horizontal striation on the outside.

Pl. 40,2 (K. 3056: 50). Marginal sherd with flaring rim.

PAINTED POTTERY.

Painted potsherds from Yang Shao Tsun have been described in the following publications previously issued:

Andersson: *An Early Chinese Culture*. 1923. Geol. Survey of China. Bull. 5.
Pl. IX—XII.
Pl. XIII, 1—2, 4, 7.
Pl. XIV,4.

Andersson: *The Cave Deposit at Sha Kuo T'un*. 1923.
Palaeontologia Sinica. Ser. D. Vol. I. Fasc. 1.
Pl. XII,1—4.

Arne: *Painted Stone Age Pottery from the province of Honan*.
Palaeontologia Sinica. Ser. D. Vol. I. Fasc. 2.
Pl. III,3—6.
Pl. IV,7—9.
Pl. VI, 16—17.
Pl. IX,31.
Pl. X,40, 42—44.
Pl. XI,45, 52—54.
Pl. XII,56.
Pl. XIII, 66, 69—73.

In Yang Shao Tsun not a single complete painted vessel was ever found. In that respect Kansu was the one source from which an admirable and voluminous material was obtained. On the other hand, there were found at Yang Shao Tsun sherds, especially small bowls, which are unequalled in the brilliance of the colours and the lustre of the surface. Arne's Pl. IV, fig. 7—9 afford some idea, though an imperfect one, of the rare quality possessed by these specimens.

Form Types.

A characteristic feature of the Yang Shao Tsun painted ceramics is the absence, or at any rate the rarity, of red urns.

The overwhelming majority of fragments belong to bowls, many of them of small size. In addition there are fragments of large vessels, probably like E. Ch. C. Pl. XIV, 1—2. There is also a single fragment, Pl. 50,6 which represents a shape probably resembling that illustrated in E. Ch. C. Pl. XIV,3. As we know nothing about the lower half and the depth of these specimens, I prefer to refer to them by the neutral term »vessel».

The form types are as follows:

1. *Small thin-walled bowls with the mouth simply profiled and the side-wall gently curved:* all of Pl. 41 except 19, 21—23; all of Pl. 42 except 1—2, 7—8; Pl. 43,1—2, 4—7, 13—15; Pl. 44,8—11; Pl. 45,1, 3, 5; Pl. 46,2—3, 5; Pl. 47,5, 7—8; Pl. 48,2—5.

Pl. 45,5 and 48,4 show the smooth simple mouth and the gentle curve of two types of these bowls.

2. *Bowls with rim bent inwards:* Several unpainted specimens of this form type were described with the monochrome vessels. In addition there are: Pl. 38,5; Pl. 39,6; Pl. 40,1, 7. Pl. 42,1—3; Pl. 45,3, 8—10; Pl. 50,1, 7.

The inward-bent rim is 31—41 mm. broad. It is sharply set-off from the side-wall with an angular bend, and this break in the profile is accentuated by a furrow. No such furrow exists in Pl. 50,7, which in outline seems to come near to Pl. 44,2 where the profile is not broken but makes a sudden bend.

3. *Bowls or urns with flaring rim:* Pl. 43,18—19; Pl. 44,1, 3, 5—7, 12; Pl. 45,4; Pl. 46,1, 4; Pl. 47,1, 6; Pl. 48,6; Pl. 49; Pl. 50,9.

One of these sherds Pl. 48,6 resembles E. Ch. C. Pl. XIV,2 and may belong to a tall vessel.

All the vessels in Pl. 49 have a flaring rim. Probably they formed high basins.

4. *Low cylindrical basins.* Pl. 41,22—23. We can reconstruct the vessel in Pl. 41,22 since a small part of the rim is preserved. The height was 56 mm. and the diameter about 160 mm. The side-wall is vertical and the vessel strictly cylindrical. Pl. 41,23 resembled 41,22, but the height is not known.

5. *Globular pear-shaped vessels.* Pl. 44,4 and Pl. 50,6 are vessels with contracted mouth. They probably resembled E. Ch. C. Pl. XIV,3 but they are too fragmentary to be reconstructed.

6. *Collared vessels.* Pl. 50,2—3. These two fragments have a real collar but are insufficient for a reconstruction to be based on them.

Ware.

In striking contrast to the coarse-grained monochrome pottery, the ware of the painted ceramics of Yang Shao Tsun is of a fine and uniform grain. The state of oxidation varies widely. In some specimens the wall is grey all through, in others the entire wall is oxidized

into brick-red. But in a large number of vessels the oxidation has been limited to a superficial zone bordering on the outer and inner surface of the vessel. In some rare cases the outer half of the wall is oxidized brick-red, leaving the inside half grey.

Four sherds out of the whole lot, Pl. 41,5, 16, 26 and Pl. 47,3, have a ware of greyish-white colour.

Painted designs.

In the line-drawing plates black is black and white is without design. Red is dotted, irrespective of whether the original shows the pale red of the ware or a slip in deep red. Pl. 48 shows a dull red paint on the pale red of the ware. This painted design is indicated by means of a linear tone.

A white slip underlies the black-painted design in a few instances. This is the case with Pl. 41,13, 22—23, 27; Pl. 47,2—7.

Another group of sherds has, beneath the black design, a deep red slip of high lustre: Pl. 41,2—4, 8—9, 14—15, 27; Pl. 46,3, 5, 7. The contrast between the black and this lustrous slip gives a most pleasing impression. This is the group which in my opinion represents the highest quality of the painted pottery of the Yang Shao stage in Honan.

Among the sherds of Pl. 42 there are some, 1—3, 15, 17, which show a phenomenon that is not quite easy to interpret. On the outside there is from the margin downwards a zone of strong brick-red colour. In Pl. 42,2—3 this zone approximately coincides with the inward-bent margin. Here it may be a pale-red dull slip on which a hook-shaped design is painted in deep red.

In 42,15, 17 this brick-red marginal zone extends deep into the wall. Here it looks as if the brick-red colour had been produced through the burning when the lower part of the outside was protected from the oxidizing effect. In the case of 42,17 there is a narrower marginal belt painted over the brick-red.

As a whole the painted décor of the Yang Shao vessels was very freely executed. Gently curved lines (Pl. 44,8, 12; Pl. 47,4), triangles with concave sides (Pl. 41,5; Pl. 44,4), round dots (Pl. 41,11, 17; Pl. 44,2—3), often crossed by lines (Pl. 41,12, 13, 18) are some of the common designs.

Groups of vertical and diagonal lines, also curved triangles and dots, are combined to adorn the marginal part of small bowls (Pl. 41,1—17).

Fork-like figures occur in rare instances within this group of patterns (Pl. 41,14, 27).

Bowls, often of considerable size, are adorned simply with a broad marginal black or red band (Pl. 42,4—6, 9, 11—14, 16—17). The black band of Pl. 42,6 is no less than 55 mm. broad.

Similar broad black marginal bands we know also from Nien Yen Tsun, Pao Te Hsien in Shansi (see »Prehistory» Pl. 96).

Trellis designs and groups of diagonal lines framing-in rhombic fields also occur (Pl. 41,25—26; Pl. 43,1—2, 8—9, 10, 12, 18—19; Pl. 48,1—3, 5—6). This design connects the Yang Shao Tsun painted pottery with some large vessels found in Ho Yin Hsien (see E. Ch. C. Pl. XIV,1—2). Pl. 42,7—8 are two small sherds of grey pottery with dark polished lines. Similar sherds were found in two localities in Shansi (»Prehistory» Pl. 96,2; Pl. 97,3).

OBJECTS OF STONE AND BONE ETC.

Stone axes.

Pl. 51,1 (K. 674). Diorite axe with rounded-rectangular cross-section and irregularly attenuated neck. Only the edge polished.

Length 160 mm. Width 61 mm. Thickness 43 mm.

Pl. 51,2 (K. 515). Short diorite axe with heavy rear half. Square-cut neck. Length 112 mm. Width 53 mm. Thickness 39 mm.

Pl. 51,3 (K. 686). Short diorite axe. Cross-section rectangular. Length 104 mm. Width 54 mm. Thickness 33 mm.

Pl. 51,4 (K. 787). Heavily incrustated diorite axe. Cross-section rectangular. Neck boldly rounded. Length 127 mm. Width 50 mm. Thickness 39 mm.

Pl. 52,1 (K. 513). Original of »An Early Chinese Culture» Pl. VI,16. Heavy diorite axe with centre of gravity in the fore part. Neck square-cut. Considerable incrustation. Length 125 mm. Width 58 mm. Thickness 44 mm.

Pl. 52,2 (K. 679). Greenstone axe of rounded contour, broad in front, with narrow neck and elliptical cross-section. Heavily incrustated. Length 95 mm. Width 52 mm. Thickness 30 mm.

Pl. 52,3 (K. 677). Greenstone axe with rectangular cross-section and rounded neck. Length 123 mm. Width 48 mm. Thickness 33 mm.

Pl. 52,4 (K. 680). Large greenstone axe with rectangular cross-section and broad fore-part. Length 157 mm. Width 69 mm. Thickness 40 mm.

Pl. 53,1 (K. 628). Slender axe of greenstone. Only the edge part polished. Length 112 mm. Width 33 mm. Thickness 31 mm.

Pl. 53,2 (K. 630). Slender greenstone axe, much incrustated. Length 125 mm. Width 29 mm. Thickness 28 mm.

Pl. 53,3 (K. 690). Axe of rounded contour. Length 125 mm. Width 52 mm. Thickness 38 mm.

Pl. 53,4 (K. 627). Original E. Ch. C. Pl. VI. Long slender axe, highest in the rear part. Length 153 mm. Width 29 mm. Thickness 35 mm.

Pl. 53,5 (K. 785). Greenstone axe of plump shape. Length 122 mm. Width 55 mm. Thickness 39 mm.

The majority of these axes (Pl. 51,1—4; Pl. 52,1—3; Pl. 53,5) belong to the group which I described in »Prehistory» as the Honan axe, a heavy instrument with full, often square-cut neck and rectangular cross-section.

Pl. 52,2 and Pl. 53,3 are rounded axes, broad at the edge. They resemble some of the Pan Shan axes such as »Prehistory» Pl. 65,1—2 and Pl. 75,1.

Pl. 53,1—2, 4 are long slender axes which distantly resemble »Prehistory» Pl. 67,1.

Pen.

Pl. 54,1 (K. 521). Heavy pen of fine-grained greenstone. Seems to have been originally an axe of the type shown in Pl. 51—53. By grinding down two large, nearly flat surfaces, one for the outside and one for the edge, it was transformed into a pen.

Length 136 mm. Width 54 mm. Thickness 29 mm.

Pl. 54,2 (K. 519). Long slender greenstone pen. The outside gently curved.
Length 162 mm. Width 53 mm. Thickness 20 mm.

Pl. 54,3 (K. 520). Broad greenstone pen of gentle outside curvature.
Length 132 mm. Width 53 mm. Thickness 20 mm.

Pl. 54,4 (K. 717). Broad and short greenstone pen. The outside more boldly convex than the previous ones. Considerable incrustation.
Length 99 mm. Width 54 mm. Thickness 18 mm.

Pl. 54,5 (K. 2200). Short and thick greenstone pen. Edge part very broad. Considerable incrustation.
Length 93 mm. Width 59 mm. Thickness 21 mm.

Pl. 54,6 (K. 524). Pen, most probably shaped from a broken axe.
Length 111 mm. Width 51 mm. Thickness 21 mm.

Pl. 55,1 (K. 535). Short, broad pen of a green densemiarolitic igneous rock.
Length 59 mm. Width 35 mm.

Pl. 55,2 (K. 527). Heavy pen of a greenish rock with dark spots.
Length 81 mm. Width 49 mm. Thickness 20 mm.

Pl. 55,3 (K. 556). Pen of dark, fine-grained rock.
Length 53 mm. Width 26 mm. Thickness 13 mm.

Pl. 55,4 (K. 552). Small pen of black rock with greenish-white veins. High polish.
Length 64 mm. Width 32 mm. Thickness 14 mm.

Pl. 55,5 (K. 529). Broad pen of greenish-grey rock with dark spots.
Length 66 mm. Width 54 mm. Thickness 16 mm.

Pl. 55,6 (K. 541). Small slender pen of dark, mottled rock.
Length 65 mm. Width 25 mm. Thickness 14 mm.

Pl. 55,7 (K. 545). Slender, strongly curved pen of greenstone.
Length 73 mm. Width 26 mm. Thickness 14 mm.

Pl. 55,8 (K. 1064). Greenstone pen.
Length 73 mm. Width 39 mm. Thickness 16 mm.

Pl. 55,9 (K. 539). Small pen of greenish-grey rock.
Length 62 mm. Width 34 mm. Thickness 14 mm.

Pl. 56,1 (K. 572). Small pen of black rock. High polish.
Length 46 mm. Width 22 mm. Thickness 13 mm.

Pl. 56,2 (K. 586). Minute pen of dark rock.
Length 28 mm. Width 12 mm. Thickness 6 mm.

Pl. 56,3 (K. 568). Pen of dark grey rock. Richly incrustated.
Length 47 mm. Width 24 mm. Thickness 9 mm.

Pl. 56,4 (K. 557). Pen of dark grey rock. Well polished.
Length 46 mm. Width 21 mm. Thickness 12 mm.

Pl. 56,5 (K. 570). Pen of dark grey rock. Polished.
Length 47 mm. Width 19 mm. Thickness 7 mm.

Pl. 56,6 (K. 612). Very high pen of dark, felsitic rock. Polished.
Length 58 mm. Width 18 mm. Thickness 17 mm.

Pl. 56,7 (K. 546). Pen of dark rock. Polished.
Length 57 mm. Width 24 mm. Thickness 12 mm.

Pl. 56,8 (K. 566). Pen of light grey, mottled agglomerate.
Length 54 mm. Width 19 mm. Thickness 9 mm.

Pl. 56,9 (K. 580). Original of E. Ch. C. Pl. VI,15.
Pen of hard, very impure white marble.
Length 63 mm. Width 16 mm. Thickness 13 mm.

Small broad axes.

In my first paper on the ancient Yang Shao village, »An Early Chinese Culture» 1923 I described (Pl. VI,14) a small and broad axe which is here reproduced in Pl. 57,5. Further specimens of more or less the same type were found at Sha Kuo T'un, »The Cave deposit at Sha Kuo T'un in Fengtien», Pl. VI, 8—11. Of the Fengtien specimens fig. 9 comes nearest to the Yang Shao Tsun specimens, which are all broader at the edge than at the rear.

Pl. 57,5 (K. 665). Original of E. Ch. C. Pl. VI,14.
Broad greenstone axe with one side nearly flat and the other more fully convex.
Length 67 mm. Width 60 mm. Thickness 19 mm.

Pl. 57,6 (K. 661). Greenstone axe like the preceding specimen, but more irregular.
Length 68 mm. Width 61 mm. Thickness 18 mm.

Pl. 57,2 (K. 472). Greenstone axe, entirely flat at the rear end and boldly rounded on the side shown in the figure.
Length 56 mm. Width 67 mm. Thickness 11 mm.

Pl. 57,7 (K. 3151). Greenstone axe, irregular in shape. Rear part narrow, forepart much widened.
Length 89 mm. Width 69 mm. Thickness 16 mm.

Pl. 57,3 (K. 663). Axe of brown rock. Rear end flat, front side convex.
Length 55 mm. Width 52 mm. Thickness 17 mm.

Pl. 57,8 (K. 671). Greenstone axe like Pl. 57,3 but more slender. Rear end flat, front side convex.

Length 65 mm. Width 37 mm. Thickness 15 mm.

Pl. 57,4 (K. 668). Axe of brownish dense rock. Neck missing. Fine polish. Rear end flat, front side convex.

Width 52 mm. Thickness 16 mm.

Pl. 57,1 (K. 725). Axe of grey felsitic rock. Neck missing. Rear end absolutely flat, front side irregularly convex.

Width 58 mm. Thickness 14 mm.

Broad, thin perforated axes.

In «Prehistory» p. 52,53 and Pl. 17—18 I have described a number of polished stone objects which were probably used for some ceremonial purpose. A large fragment of an «axe» of this type cut in dark impure jade and found at Yang Shao Tsun is reproduced in Pl. 74,2 of the said work. In our Yang Shao Tsun material we have some additional, more or less fragmentary, specimens, which are reproduced in Pl. 58.

Pl. 58,2 (K. 510). This is our only complete specimen made from a greenish, miarolitic igneous rock. It is an unfinished piece flaked all round the contour and retouched by hammering. On both sides there are broad and deep pits, also made by hammering, in preparation for perforation. The side shown in the plate has been somewhat smoothed by grinding.

Length 150 mm. Width 89 mm. Thickness 20 mm.

Pl. 58,1 (K. 652). This is the upper half of a specimen in grey diorite. The surface is roughly polished all over. The perforation is made, without boring, by hammering with some kind of retouch.

Pl. 58,4 (K. 483). Lower half of the specimen is cut in a very coarse-grained diorite. Broken before being embedded in the soil as the incrustation also covers the fracture.

Pl. 58,3 (K. 481). Lower half of a specimen cut in a black rock. It is possible that this was not an axe but a circular object with a hole in the centre.

Pl. 58,5 (K. 651). Fragment of a specimen in a dark rock. In the centre a large, biconical, well-bored hole. Nothing left of the outer contour.

Pl. 58,6 (K. 6780). Specimen, with lower part missing, cut in a grey, dioritic rock. Smoothened by grinding but not polished. Biconical hole formed by hammering only. A strange feature should be noted: just above the fracture there is, on each side, a shallow furrow one millimeter deep and eight millimetres broad, showing much wear.

Pl. 58,8 (K. 6779). W. of Wang (the southern part of the Yang Shao village, a section of the site where we found many interesting specimens).

This object is very heavily incrustated. The rock seems to be a dark, mottled impure jade. Originally this seems to have been a splendid specimen, nicely cut and polished, 104 mm. wide but only 9 mm. in thickness. Large hole (18 mm. diam.), nearly cylindrical, bored from both sides.

Pl. 58,7 (K. 769). It is only with much hesitation that I have included here this specimen, which was bought from a villager in Yang Shao Tsun.

The rock is dark jade, slightly mottled and with a few black spots.

What we have here is only the lower half of a specimen cut and polished with extreme delicacy. The specimen is widest at the edge (88 mm.). Near the fracture it is only 83 mm. wide. The thickness is only 7.5 mm. The fracture is old, with the projecting ridges rounded as if from long and constant wear. The cutting of the specimen is perfectly regular. The narrow lateral surfaces are 5.5 mm. broad on one side, 4 mm. on the other. Their straight-cut borders are angular but slightly rounded off in the polishing. Along these lateral borders there run cavetto-shaped furrows, 4—5 mm. wide, but very shallow. On one side these cavettos are cut double and treble. On the other side there are faint traces of this double-cutting. In the front part of the «axe» there is a straight, very faint, almost imperceptible furrow running at the base of the edge right across the specimen from one lateral cavetto furrow to the other. This specimen was bought, and there is grave doubt as to its provenance. For many years I held it to be a relatively late specimen which had nothing to do with the prehistoric site. Nevertheless, upon now revising my determinations, I feel hesitant. Elegant cavetto-cuttings just as rectilinear as this specimen are known from the Chu Chia Chai site in Kansu. Pl. 24 of the Chu Chia Chai monograph shows a long asymmetrical chisel, which carries not less than three long cavetto cuttings quite as straight as those in our present specimen. This specimen, bought at Yang Shao Tsun, has been held to be of historical age because of its regular shape and elegant polish. For comparison we may refer to «Prehistory», frontispiece 1,3—4, where we see two extremely thin jade chisels from Pan Shan, just as perfectly regular and pleasingly polished as the specimen bought at Yang Shao Tsun. When all these facts are considered, the Yang Shao Tsun specimen cannot be ruled out as of proved historical age. The question of its age must remain open, awaiting further evidence.

Stones hoes.

In «Prehistory» Pl. 23 there are reproduced a number of long slender limestone hoes probably used in primitive agricultural work. We have (l. c. page 58) marked these hoes as forming a characteristic feature of the Honan Yang Shao culture.

A number of these hoes were found at Yang Shao Tsun.

Pl. 59,1 (K. 511). This is a unique specimen, nearly twice as wide as most of the others. The rock is a limestone of light chocolate-brown colour. The whole specimen is pleasingly smoothened by long wear.

Length 232 mm. Width 155 mm. Thickness 15 mm.

Pl. 59,2 (K. 505). Lower half of a big specimen. Made from a slab of brownish-grey limestone. Probably an unfinished piece, as it shows no signs of wear, but chipping all along the edges and hammering over both flat surfaces.

Width 122 mm. Thickness 23 mm.

Pl. 59,3 (K. 508). Dark grey limestone. Rectangular, with a narrower handle part formed only by coarse and irregular chipping. Top missing. Polished by intensive wear.

Width 76 mm. Thickness 15 mm.

Pl. 60,1 (K. 504). Top part of a specimen, in the kind of rock and treatment of edges and surfaces like Pl. 59,2, but larger.

Width 134 mm. Thickness 24 mm.

Pl. 60,2 (K. 509). Rock dark grey, variegated dense limestone. Was originally a long hoe, like Pl. 59,3, which has been cut across to form a short quadratic instrument. The cutting was executed from both sides only to a depth of 2 mm. and the core was broken off. Pleasingly polished by long wear.

Width 80 mm. Thickness 10 mm.

Pl. 60,3 (K. 735). Dark dense limestone. Fragment of a hoe with narrow handle part, broken both at the top and below.

Pl. 60,5 (K. 507). Lower half of a hoe of dark limestone. Surface nicely polished.

Pl. 60,4 (K. 2436). Schistose rock. Irregular instrument with edge not only at lower end but also on left side.

Length 118 mm. Width 73 mm. Thickness 14 mm.

Stones knives.

Pl. 62,3 (K. 6786). This is a typical specimen of the most primitive form of stone knife. From a pebble of greenstone a suitable flake was detached, and by chipping round the edges the final shape was given to the piece. Two lateral notches probably served for tying.

Pl. 61,9 (K. 453) is a piece in general outline like the preceding one, but much thinner, probably made by retouching a very thin pebble of micaceous quartzite.

Pl. 61,1 (K. 6784). »Pai's pocket«. This is a specimen made from a plate of thin-bedded fine-grained sandstone with green grains (glauconite?).

Pl. 61,11 (K. 400). Knife of the same kind of rock and much the same shape as the previous specimen.

Pl. 61,3 (K. 6785). »Pai's pocket«. Half of a knife of the same glauconitic sandstone as the two previous specimens. It seems as if this very regularly shaped knife had notches at the sides and, in addition, a central hole.

Pl. 62,2 (K. 11.113). Locality XV. Regularly rectangular knife of grey limestone. Neck square-cut. Deep notches.

Pl. 61,2 (K. 6782). »Pai's pocket«. Knife of yellowish grey limestone. Neck rounded. Deep notch.

Pl. 61,12 (K. 420). Soft banded slate. Edge much worn.

Pl. 61,13 (K. 2183). Large, unusually regularly cut, rectangular knife of brownish-red limestone.

Length 125 mm. Width 53 mm. Thickness 9 mm.

Pl. 62,1 (K. 11.120). W. of Yang Shao Tsun, uncertain whether it belongs to the site. Very well cut knife of yellowish grey, fine-grained sandstone. Edge absolutely regular. Length 95 mm. Width 52 mm. Thickness 10 mm.

Pl. 61,7 (K. 6787). Rock brown fine-grained sandstone. Carefully cut, in shape like the preceding specimen.

Pl. 61,4 (K. 445). Carefully cut knife of white fine-grained sandstone.

Pl. 61,8 (K. 417). Carefully cut knife of dark crystalline rock.

Pl. 61,5 (K. 6783). Loc. IV,1. White sandstone with glauconite grains.

Pl. 61,10 (K. 775). Micaceous schist.

Pl. 62,6 (K. 2195). »Pai's pocket». Grey slate. Long low knife, with 2, probably 3 holes.

Pl. 62,4 (K. 415). Grey quartzite? Long, low, thick (9 mm.) knife with a central hole and notches at the sides.

Pl. 62,5 (K. 410). Very thick (9 mm.), long and low knife? No hole or notch.

Pl. 61,6 (K. 6781). Fragment of a mussel-shell knife.

Bone instruments.

Awls.

Pl. 74,1 (K. 3099: 1). Long slender awl with slight incrustations.
Length 181 mm.

Pl. 74,2 (K. 3066: 9). Regularly shaped awl. Good polish. Incrustations here and there.
Length 98 mm.

Pl. 74,3 (K. 6788). »East cliff». Heavily incrustated awl. Dark, beautifully polished surface.
Length 105 mm.

Pl. 74,4 (K. 3100: 1). Upper half of yellow, well-polished awl. Rich incrustation. Not broken but cut by the gnawing action of a rodent(?).
Length 95 mm.

Pl. 74,5 (K. 2175). »Pai's pocket». Awl, rounded at one end and flattened with a chisel-like edge at the other. Some incrustation.
Length 130 mm.

Pl. 74,6 (K. 3100: 2). Half of a black awl with good polish.

Pl. 74,12 (K. 3099: 2). Larger part of a carefully shaped awl, probably flattened at the missing end.

Pl. 74,13 (K. 3096). Awl(?) of yellowish-brown colour. Resembles a type of arrow-point but is much longer and more slender. The point is blunt and the whole object is slightly bent, so it can hardly be an arrow-point.
Length 103 mm.

Pl. 74,14 (K. 3066: 11). Awl of dark grey colour.
Length 132 mm.

Pl. 74,15 (K. 3066: 15). Awl, flattened-triangular in cross-section.

Pl. 74,16 (K. 3066: 17). Small awl, flattened at one end, pointed at the other.
Length 74 mm.

Pl. 74,17 and 18 (K. 6729: 2). Loc. XVII, (K. 11.192). Loc. VI,5.
Objects approximately circular in cross-section and pointed at both ends.
Length 58 mm. resp. 67 mm.

Pl. 74,10 (K. 3100: 3). Objects like the preceding ones but cut in mother-of-pearl.

Pl. 74,11 (K. 3067: 2). Small triangular bone point.

Broad pointed instruments.

Pl. 76,9 (K. 3070: 9). Fragment of broad bone point.

Pl. 76,7 (K. 3067: 3). Fragment of broad, obtusely pointed object made from a deer's antler.

Pl. 76,12 (K. 3067: 12).

Pl. 76,13 (K. 3167: 1). Loc. VIII.

Pl. 76,14 (K. 3174: 24). »Pai's pocket».

Pl. 76,15 (K. 3064: 7). Loc. XV. fragments of broad bone points.

Pl. 76,11 (K. 3067: 1). Deer's antler(?) shaped into a chisel-like point.

Sewing needles.

Pl. 74,7 (K. 3175). Loc. XIV.
Upper part of sewing needle, pointed above the eye.

Pl. 74,8 (K. 3067: 18). Complete needle with two eyes.

Chisel-shaped instruments.

Pl. 75,6 (K. 2172: 1). Loc. I. A spatula-shaped instrument, narrower in the upper part (handle), which is largely broken away.

Pl. 75,7 (K. 3164: 1). Loc. V. A thin spatula-shaped instrument. Heavy incrustation.

Pl. 75,1 (K. 3097). A small chisel-shaped instrument, square-cut at upper end.

Pl. 75,2 (K. 3103: 6). Fragment of a chisel- or spatula-shaped instrument. Colour shading from grey and brown into black. Polish exquisite. Considerable incrustation.

Pl. 75,3 (K. 3066: 4). Small regular bone chisel, broken at upper end.

Pl. 75,5 (K. 2172: 2). Loc. I. Elongated, spoon-shaped instrument. Cream-coloured, perfect polish.

Pl. 75,4 (K. 3160: 3). Like Pl. 75,5, but more slender.

Pl. 75,9 (K. 3044: 42). W. of Wang. Instrument like the two preceding ones. Grey, well polished.

Pl. 75,8 (K. 3066: 2). Upper part of an object with a stopper at the upper end. Grey, well polished.

Aberrant bone objects.

Pl. 76,6 (K. 3067: 5). Club-like object with a narrow conical point like a tang for inserting into a handle.

Pl. 76,10 (K. 3067: 6). Like the preceding specimen, but more irregular. Hollow in the interior.

Pl. 76,8 (K. 3158: 1). A fragmentary instrument of unique shape. Cut from a bone that is spongy and hollow in centre. The basal part is square-cut below with an unfinished incision 6—9 mm. higher up. This basal part projects with a rounded contour into two lateral rami, which are broken, one at the base and the other 40 mm. higher up. These rami are 9 mm. broad at the base, 6 mm. higher up and their thickness is only 3 mm. Use unknown.

Objects of boar's tusk.

Pl. 76,3 (K. 3108: 1). A knife or razor with a short cutting edge in the lowest part.

Pl. 76,2 (K. 3044: 41). W. of Wang. Like preceding specimen but no distinct cutting edge.

Pl. 76,1 (K. 3104: 2). A thinly cut lamel of a boar's tusk. Possibly for adornment.

Bead.

Pl. 74,9 (K. 3134: 3). A long tubular bead made from a hollow bone.

Pottery scoops and similar objects.

Pl. 77,1 (K. 12000: 1888) a inside, b outside view.

From a broken bowl of fine brick-red ware, with a red slip but without painting, this scoop was shaped principally by grinding down an edge from the outside (see 1 b).

Pl. 77,4 (K. 3069: 3). This tool was shaped from a piece of pale-grey pottery. It has a blunt edge round the curved contour.

Pl. 77,3 (K. 12002: 63) and Pl. 77,5 (K. 12000: 332).
Cut from pieces of pottery.

Pl. 77,2 (K. 2193). A very queer clay object in appearance like a piece of old much-worn black leather. Surface polished. One side with three radiating furrows.

Spinning whorls.

Pl. 71,1 (K. 3159: 3). Spinning whorl of clay, greyish-brown at the surface, grey in the interior.

Side view conically truncated. Bottom diameter 45 mm. Top diam. 28 mm. Height 30 mm.

Pl. 71,4 (K. 3150: 8). Pale brick-red clay. Side view low conical. Diam. 42 mm. Height 12 mm.

Pl. 71,6 (K. 2184). Like 71,4 but clay slightly darker. ●

Pl. 71,2 (K. 11230: 2). »Pai's pocket». Coarse clay, black surface. Shape low cylindrical. Diam. 43 mm.

Pl. 71,3 (K. 3159: 6). Green, very soft stone. Boring cylindrical. Diam. 41 mm. Thickness 7 mm. Diam. of hole 7 mm.

Pl. 71,5 (K. 647). Original of E. Ch. C. Pl. VI,2. Vivid red stone. Boring cylindrical. Diam. 40 mm. Thickness 7 mm. Diam. of hole 7 mm.

Pl. 71,10 (K. 3150: 9). Fine-grained yellowish-grey rock. Cylindrical boring. Diam. 69 mm. Thickness 12 mm. Diam. of hole 9 mm.

Pl. 71,8 (K. 3150: 17). Grey sugar-grained sandstone. Boring irregularly biconical. Diam. 62 mm. Thickness 20 mm. Diam. of hole 17—8 mm.

Pl. 71,9 (K. 646). Grey fine-grained calcareous rock. Boring slightly conical unilaterally. Diam. 65 mm. Thickness 10 mm. Diam. of hole 11—8 mm.

Pl. 71,7 (K. 3159: 5). Grey-to-red variegated limestone. Boring cylindrical. Diam. 65 mm. Thickness 6—9 mm. Diam. of cylindrical hole 9 mm.

Pl. 71,11 (K. 648). Reddish-grey fine-grained rock. Slightly calcareous. Diam. 83 mm. Thickness in inner part 9.5 mm., in outer part 5 mm.

Biconical clay objects.

Pl. 72,9 (K. 2185). Loc. XI.

Biconical object of chocolate-brown clay. Dark-grey on the surface. On the equatorial part 4 holes, and a fifth hole at the upper pole. Two at least of the equatorial holes meet in the interior.

Pl. 72,10 (K. 3159: 15). Biconical object, surface chocolate-brown. One big hole diagonally penetrating the equatorial part. A shallow hole at the top pole. Length 36 mm.

Pl. 72,11 (K. 3155: 1). Surface of clay yellowish grey. Perforation like Pl. 72,10: Diametrical hole at the equator. Shallow hole at the top pole.
Length 47 mm.

Pl. 72,12 (K. 3069: 1). Brownish grey clay. Shape nearly cylindrical. A vertical hole from pole to pole. Use uncertain. Toy? For gyration?
Length 52 mm.

Polishers.

In «Prehistory» p. 75 I have illustrated two types of clay objects aa and bb from Honan and Kansu Yang Shao. They are also well represented at Yang Shao Tsun.

Pl. 72,5 (K. 3159: 2). Mushroom-shaped clay object with short handle.
Diam. 65 mm.

Pl. 72,7 (K. 3159: 7). Ovoid clay object with a hole for inserting the finger.
Length 53 mm.

Pl. 72,8 (K. 3159: 4). Large, somewhat fragmentary object of dark grey clay. Square-cut at one end, attenuated at the other. Coarse mat impression on the upper side. Big hole for the finger. Under side polished by wear.

Pl. 72,4 (K. 6790). Heavy clay object, rounded triangular in cross-section. Hole for inserting the finger.
Length 84 mm. Width 54 in broader, 50 mm. at narrower end.

Miniature vessels.

Pl. 72,2 (K. 3159: 8). A very crudely made object of oval circumference. Chocolate-coloured clay. Two crudely made holes in the bottom.
Length 63 mm. Height 41 mm.

Pl. 72,3 (K. 3159: 9). Small square-cut vessel with a knob for holding. Clay greyish brown.
Total length 40 mm.

Pl. 72,6 (K. 3159: 10). Like preceding specimen, but handle turned upwards.

Chalk cylinder.

Pl. 72,1 (K. 3149). Unique object of a white, soft, chalky substance entirely dissolvable in hydrochloric acid. A conical hole at one end.
Length 70 mm. Diam. 83 mm. Depth of conical hole 30 mm. Diam. of base of conical hole 25 mm.

Stone-discs.

Pl. 73,15 (K. 773). Large disc of dark marble. Lower side (shown in plate) and also the lower 10 mm. of side wall neatly polished. Upper two-thirds of side wall and the whole top side irregular and rough. The side wall is narrower near the bottom and roundedly broader at the top.

The nearest explanation is that this specimen was held in the hand and used for grinding or some polishing action.

Diam. 132 mm. Diam. of base 118 mm. Thickness 35 mm.

Pl. 73,11 (K. 6789). Irregularly cut disc of nearly white fine-grained sandstone. Top surface (shown in plate) is a bedding plane. Bottom surface neatly polished. Side roughly cut.

This specimen was also probably used for some polishing action.

Diam. 65 mm. Thickness 19 mm.

Rounded conical objects.

Pl. 73,10 (K. 639). Object of dark crystalline rock, heavily incrustated. Top part shows some wear.

Length 70 mm. Diam. 40 mm.

Pl. 73,9 (K. 640). Rock greenstone. Top and flat base show some wear. Slight indication of a furrow round the lower part of side-wall.

Length 50 mm. Diam. of base 35 mm.

Pl. 73,7 (K. 3138: 4). Rock grey limestone. Much incrustation.

Length 46 mm. Diam. of base 34 mm.

Pl. 73,8 (K. 6472). Conical object of coarse brownish-grey burnt clay. Base regularly flat. Round the lower part of side-wall a very distinct furrow.

Length 52 mm. Diam. of base 43 mm.

As some of these objects show signs of wear at their base, they might be explained as having been used for some grinding action.

On the other hand, it should be borne in mind that Karlgren has explained such conical objects of clay as phallic symbols. »Some fecundity symbols in ancient China» B. M. FEA N:o 2. 1930. Pl. II,1—3.

Elliptical stone ball.

Pl. 73,14 (K. 752). Elliptic ball of micaceous hematitic rock. As seen from above, as in the plate, it is circular in circumference but from the sideview it is elliptical in contour.

Diam. 64 mm. Thickness 40 mm.

Sling balls.

Pl. 73,1 (K. 2192). Burnt clay. Ball well shaped.

Diam. 26 mm.

Pl. 73,2 (K. 3164: 4). Loc. V. Burnt pale-reddish clay.

Diam. 16 mm.

Pl. 73,3 (K. 637). Hard whitish-grey stone.

Diam. 25 mm.

Pl. 73,12 (K. 634). Burnt clay. Shape slightly flattened.

Larger diam. 56 mm. Smaller diam. 40 mm.

Pl. 73,13 (K. 2186). Burnt clay.
Diam. 45 mm.

Pl. 73,16 (K. 3174: 31). »Pai's pocket«. Heavy irregular clay ball.
Diam. 75 mm.

Pl. 73,4,6 (K. 3150: 21, 20). Balls (fragments) of chocolate-brown burnt clay. Surface densely decorated with rows of crescent-shaped impressions.

A quite identical décor has been described by H. Schmidt in »Explorations in Turkestan», Vol. I. Washington 1908. Pl. 43,8, 11.

Diam. 33 mm.

Triangular tablet.

Pl. 73,5 (K. 3159: 12). Triangular tablet of reddish calcareous rock.
Length 46 mm. Width 27 mm. Thickness 5 mm.

Arrow heads.

(Pl. 63—64, all objects in natural size).

Flat, triangular arrow heads.

Pl. 64,15 (K. 11161). Orig. of E. Ch. C. Pl. VI,11.
Red slate. Near the base there are two side notches.

Pl. 64,16 (K. 2173). Near loc. IV. Grey slate.

Pl. 64,19 (K. 2179: 3). Dense, rather soft red rock.

Pl. 64,20 (K. 6729: 27). Grey slate.

Pl. 64,17 (K. 11159). Orig. of E. Ch. C. Pl. VI,9.
Grey slate. Provided with a tang.

Pl. 64,18 (K. 2180). Orig. of E. Ch. C. Pl. VI,10. Grey slate.
In shape this specimen forms a transition to the following group.

Broad triangular points of lozenge-shaped or triangular cross-section.

Pl. 63,1 (K. 11167). Orig. of E. Ch. C. Pl. VI,8.
Grey slate. In view of its size, it might possibly be called a lance head.

Pl. 63,2 (K. 2779: 4). Grey slate. Is also the size of a small lance head.

Pl. 63,3 (K. 11158). Grey slate.

Pl. 63,4 (K. 2179: 1). Grey slate.

Pl. 63,5 (K. 6729: 22). Grey slate.

Pl. 63,6 (K. 11209). »Pai's pocket«. Obsidian.

- Pl. 63,9 (K. 3138: 9). W. of Wang. Dark slaty rock.
- Pl. 64,13 (K. 6729: 18). Loc. II, 70—140 cm. depth. Bone. Unusually long tang.
- Pl. 64,14 (K. 11182). Boar's tusk.
- Pl. 64,12 (K. 2177). Loc. III, 0.55—1.4 m. depth. Boar's tusk.
- Pl. 64,10 (K. 11183). Loc. III, 0.55—1.4 m. depth. Mother-of-pearl.
- Pl. 76,4 (K. 3100: 5). Mother-of-pearl. Strong incrustation.
- Pl. 76,5 (K. 3100: 4). Mother-of-pearl.
- Pl. 64,11 (K. 6729: 11). W. of Wang. Bone.
- Pl. 64,9 (K. 11178). W. of Wang. Bone.
- Pl. 64,8 (K. 11180). Loc. XVI. Bone.
- Pl. 63,14 (K. 11172). W. of Wang. Grey slaty rock.
Long slender specimen with lozenge-shaped cross-section.
- Arrow points with cross-section in the shape of an equilateral triangle.*
- Pl. 63,13 (K. 11174). Small lance head or arrow point. Grey slate.
- Pl. 63,12 (K. 6729: 1). Hard grey dense rock.
Lower half irregularly rounded, point of triangular cross-section.
- Pl. 63,11 (K. 11171). Grey slaty rock.
- Pl. 63,10 (K. 11176). Grey dense rock, not very hard.
- Pl. 63,7 (K. 3101: 14). Grey dense rock, not hard.
The narrow cylindrical or conical tang broken away.
- Pl. 63,8 (K. 6729: 17). Greenish yellow-spotted rock, slightly translucent.
Too soft to be jade.
- Pl. 64,7 (K. 3174: 18). Bone. Point with triangular cross-section. Lower part circular cross-section.
- Pl. 64,6 (K. 6729: 7). Loc. II. 70—150 cm. depth. Bone.
Shape like the preceding specimen. Tang broken away.
- Pl. 64,5 (K. 11197). W. of Wang. Bone.
- Pl. 64,3 (K. 11193). Loc. XVII. Bone. One side of the point is flat, the two others rounded.

Pl. 64,4 (K. 3174: 14). Bone. Probably the basal part of a point like Pl. 64,6—7.

Points with rounded cross-section.

Pl. 64,2 (K. 6729: 6). Bone. Cross-section irregularly rounded.

Pl. 64,1 (K. 2176). Loc. V. Bone. Short, very regularly shaped rounded conical point. Tang broken away.

Stone and clay rings.

In the Yang Shao Tsun site there are numerous stone and clay rings. Our six plates 65—70 give an ample representation of the variety of types. Some notes on material and shapes will serve as commentary to the plates.

A. *Material:*

The materials used for making these rings are mostly stone and clay. A few are cut in mother-of-pearl. One is probably glass, and in that case a late intrusion. Two specimens are uncertain, possibly bone.

Stone rings.

- Pl. 65,1. Green to white variegated marble.
 ,2. Greenish grey (talcose?) marble.
 ,3. Greenish grey jade.
 ,4. Greenish variegated marble.
 ,5. Grey soapstone.
 ,6. Impure grey marble.
 ,7. White translucent marble.
 ,8. Grey marble.
 ,9. White marble.
 ,10. Spotted impure marble.
 ,11. White marble.
 ,12. Grey impure (talcose?) marble.
- Pl. 66,1. Red fine-grained rock.
 ,2. Dark crystalline rock.
 ,3. Dark crystalline rock.
 ,4. Dark crystalline rock.
 ,5. Greenish jade.
 ,7. Dark crystalline rock.
 ,8. Yellowish marble.
 ,9. Black schist.
 ,10. Hard, black to green variegated rock.
 ,11. Hard dark rock.
 ,12. Soft dark-grey rock.
- Pl. 67,1. Greyish green marble.
 ,2. White marble?
 ,3. Grey substance with yellowish coating.
 ,4. Muscovite.
 ,5. Jade?

Pl. 67,6. Soft vividly green rock. Spec. gr. 2.82.

- ,7. Pale translucent steatite.
- ,8. Variegated marble.
- ,9. Devitrified glass (later intrusion).
- ,10. Grey limestone.
- ,11. Bone-like substance with a high polish.
- ,12. Muscovite?
- ,13. Mother-of-pearl.
- ,14. Gray limestone.
- ,15. Mother-of-pearl.
- ,16. Dark soft rock.
- ,17. Mother-of-pearl.

Pl. 69,1,3,5 are slender rings of deep brownish-red colour and high polish cut in a stone of fine grain.

- ,14. Black rock with a high polish.
- ,16 and 18. Greenish grey marble.

Pl. 70,7 and 9 the same fine-grained red stone as Pl. 66,1 and Pl. 69,1,3,5.

Clay.

All rings not mentioned above are made of clay, mostly grey but in some cases with a reddish or yellowish tint.

B. Shapes:

The different forms appear from the plates, which in numerous cases are accompanied by cross-sections.

Some remarks should here be added.

There is a very great variety of forms from broad rings like Pl. 67,8 and Pl. 68,1 to very high rings like those in Pl. 65 and 66.

There are types with circular cross-section, Pl. 69,17, horse-shoe shaped section, Pl. 69,18, and quadratic cross-section, Pl. 67,14.

The six specimens in the right file of Pl. 68 belong to the peculiar type that I named in »Prehistory» page 266 »rings with thickened inner margin». Pl. 68,12 is asymmetrical in a peculiar manner.

Pl. 70 I should call the »humpback plate».

Pl. 70,4 is serrated by indentations. All the rest carry on their outer contour hump-back protuberances, which may be small and numerous as in the case of 70,2 or few and broad as in 70,13, or only slightly discernible as in 70,11. Some are very acute as in 70,8. Nearly all are sharply pointed in cross-section. Only 70,9, cut in the red stone, has broad and full humpbacks. Several of these protuberances are striated by horizontal furrows (Pl. 70,14, 6, 5 etc.).

FINDS IN THE BURIAL SITE (LOC. XII).

The topography of the large burial site (loc. XII) has been described in the topographical chapter.

The only skeleton associated with ceramic objects was Skel. Q with which five vessels, two Li, two urns and one plate were found. These five vessels are described in »Prehistory» p. 246—247, Pl. 200.

No other finds were made in this site under such circumstances that they could with any certainty be referred to the skeletons.

However, some small artifacts were found in various places during the excavation. These objects are reproduced in plates 78—79 and described below. Their coordinates as measured by Zdansky are given in the following list.

Coordinates for small finds within the burial site.

	X	Y	Z	(Loc. XII)
Pl. 78,1 (K. 3071: 1)	480	80	— 273	
,2 (K. 3080)	397	68	— 267	
,3 (K. 3071: 2)	480	80	— 273	
,4 (K. 3075)	465	51	— 273	
,5 (K. 3081)	455	233	— 314	
,6 (K. 3078)	200	186	— 347	»Über dem Schädel eines Skelettes, doch vermutlich ohne Beziehung zu diesem.« (Zdansky).
,7 (K. 3094)				
,8 (K. 3076)	340	313	— 415	
,9 (K. 3074)	655	52	— 259	
Pl. 79,1 (K. 3093)				Skel. P. Found among ribs.
,2 (K. 3088)	365	140	— 329	
,3 (K. 3089)	310	336	— 372	
,4 (K. 3079)	370	165	— 370	
,5 (K. 3085)	390	150	— 273	
,6 (K. 3077)	345	274	— 402	
,7 (K. 3090)	245	282	— 390	
,8 (K. 3087)	140	165	— 347	
,9 (K. 3086)	362	35	— 335	»Zusammen mit Skelet P.«
,10 (K. 3091)				Skel. S. At right side of skeleton.
,11 (K. 3084)	210	190	— 370	
,12 (K. 3082)	250	285	— 395	
,13 (K. 3073)	595	66	— 267	
,14 (K. 3072)	430	276	— 338	
,15 (K. 3092)				»Skel. T. Unter der linken Hand.«
,16 (K. 3083)	205	190	— 345	

Description of the small finds in loc. XII.

Pl. 78,1 (K. 3071: 1). Knife made from a flake of violet quartzite. Side notches. Heavy incrustation.

Pl. 78,2 (K. 3080). Stone sling ball. Diam. 25 mm.

Pl. 78,3 (K. 3071: 2). Rectangular sandstone knife. Heavy incrustation. Length 65 mm.

Pl. 78,4 (K. 3075). Upper half of a greenstone axe.

- Pl. 78,5 (K. 3081). Small celt of white marble.
- Pl. 78,6 (K. 3078). Fragment of a big greenstone (?) axe.
- Pl. 78,7 (K. 3094). Skel. G. Bone piece carved by Man? or by some big rodent?
- Pl. 78,8 (K. 3076). Small, high pen of dark grey mottled rock.
- Pl. 78,9 (K. 3074). Fragment of a stone implement of green porphyric rock.
- Pl. 79,1 (K. 3093). Skel. P. Narrow bone instrument.
- Pl. 79,2 (K. 3088). Complete sewing needle.
- Pl. 79,3 (K. 3089). Nearly black, elegantly polished bone point.
- Pl. 79,4 (K. 3079). Triangular stone point, probably arrow-head.
- Pl. 79,5 (K. 3085). Basal part of bone arrow-point.
- Pl. 79,6 (K. 3077). Triangular arrow-point of grey schist.
- Pl. 79,7 (K. 3090). Point made from a boar's tusk.
- Pl. 79,8 (K. 3087). Broken needle.
- Pl. 79,9 (K. 3086). Bone arrow-point, flatly triangular, with one convex side.
- Pl. 79,10 (K. 3091). Fragment of bone awl.
- Pl. 79,11 (K. 3084). Crude bone point.
- Pl. 79,12 (K. 3082). Crude bone point.
- Pl. 79,13 (K. 3073). Sherd of painted pottery. Ware brown. Black paint on a cream white slip.
- Pl. 79,14 (K. 3072). Sherd of painted pottery. Black painting on the usual Yang Shao brick-red ware.
- Pl. 79,15 (K. 3092). Skel. T. Fragment of deer tusk.
- Pl. 79,16 (K. 3083). Bone double point.

Votive finds near the burial place (loc. XII).

In Pl. 25—27 we have brought together two groups of finds of a singular type, made near the big burial site, loc. XII.

One group is represented by fig. 4—9 in Pl. 27. They are clay cones, 45—76 mm. high, and consisting of reddish-brown burnt clay.

20 such pieces marked K. 3045: 1—20 were reported to have been found close together in one spot »W. of Wang», which means about 150 m. SW from loc. XII.

Three cones marked K. 2187: 1—3 and also labelled »W. of Wang», may have come from another spot or from another collector.

Furthermore there are three cones numbered K. 6473—75 (Pl. 27,1—3). K. 6473 and 6475 are labelled only Yang Shao Tsun, but 6474 bears a special mark, Pp, which is a rich finding-place near »W. of Wang», west of the small, southern village between the altitude figure 500 and the excavation spots X and XV.

It will be noted that all these finds were made within a limited area nearly SW from the big burial place loc. XII.

These clay cones were described by Prof. Karlgren in a paper »Some Fecundity Symbols in ancient China». BMFEA Vol 2, 1930. P. 1—54, where he interprets them as phallic symbols serving in the fertility cult.

Most significant of these finds is K. 3045: 1—20, as these objects were all found close together in one spot. Their significance is further enhanced by another find, K. 6564 a—o, on which I can report much more definitely, as I was fortunately in a position personally to excavate these small finds.

One day, when Dr. Zdansky was excavating the big burial site loc. XII, I went there for inspection. When walking round the site I saw the old farmer Wang scratching the earth on the slope some few tens of metres SW from the place where Zdansky was excavating the skeletons. He had just found in the soil a couple of miniature vessels, and I at once took over the work on that spot. Just below the present earth surface I found, densely crowded together in a space of about 50×50 cm., the 15 miniature urns shown in Pl. 25—26, all reproduced in 2/3 of natural size.

Little need to be said about the size and shape of these small urns, as they are perfectly shown by the very good plates.

How do these miniature urns compare with the ordinary furniture of the site?

Pl. 25,1 comes very close in shape to Pl. 11,4 which is twice as large as 25,1. It is interesting to note that 11,4 was found at or near loc. XII, which means in close vicinity to the hoard K. 6564 a—o (Pl. 25—26). As a side-issue it may be noted that the unique vessel 11,5 (K. 6565) was found in the same vicinity.

Urn like Pl. 10,1, 3, 4 resemble most of the miniature urns. In a general way we notice that those small urns resemble the ordinary Yang Shao urns with the slight difference that the miniatures all have a wide mouth. Assuming that these miniatures are votive objects (see below) and contained some offerings, it was only natural that these small vessels should be given a wide opening.

Some of these miniature urns, such as Pl. 25,1 and 26, 8—9, are carefully made, with signs of rotary action, specially on the underside of the bottom. Others again, like 25,4—6, are evidently hand-made, but carefully so. Then there is a third group, embracing the urns not already mentioned, vessels very crudely made. Even in this different workmanship we meet a characteristic of the Yang Shao pottery: of two vessels of the same type, one is often crudely made, the other a product of excellent workmanship. In addition, there are vessels of which the upper half is executed to perfection, whereas the lower half is very carelessly worked.

Most of the urns are grey in colour, ranging in hue from light grey to nearly dull black (Pl. 26,5—6).

Three of these urns, Pl. 25,4—6, belong to the very characteristic black pottery group: not only have these small hand-made urns the glossy, smooth black surface of the »black pottery» but also the chocolate-brown ware that is the marked monopoly of Yang Shao »black pottery».

Is it not tempting to think that these two hoards, K. 3045: 1—20 and K. 6564, a—o, the former occurring near and the latter close by the big burial site (loc. XII), represent offerings to the dead, like those offered by the present-day Chinese at their ancestors' graves on the fifth day of the fifth moon? Very likely the minute urns of K. 6564 were filled with cereals and meat.

The clay cones K. 3045 are compared by Karlgren with the wooden tablets now placed in the ancestral temples.

If this comparison holds good, we have found still another parallel linking the Proto-Chinese of the Yang Shao stage with the historical Chinese.

THE SITE OF PU CHAO CHAI

During the excavations at Yang Shao Tsun, my collector Chen brought to my knowledge an important site at Pu Chao Chai, a village situated 10 li west of Yang Shao Tsun, 15 li NW of Mien Chih city. On the 21st November 1921 I went to Pu Chao Chai accompanied by Dr. Zdansky, Chen acting as our guide, and we then made the observations which are briefly recorded here. It was my intention to return to this important site for a systematic survey, but I failed to get an opportunity of doing so.

The location of Pu Chao Chai is similar to that of Yang Shao Tsun, in that the village is situated at the confluence of two big ravines, but in this case the modern village lies up on the actual promontory between the two ravines. These ravines, moreover, are much wider than those at Yang Shao Tsun, but they also have very steep walls. The broad, flat bottom of the ravine is covered with masses of pebbles. Similar pebbles were also found embedded in the loess of the ravine walls.

Close by the village were seen numerous exposures of culture soil, grey, with pieces of charcoal, quite like the «ashy earth» of Yang Shao Tsun. Two points of difference from Yang Shao Tsun were observed: here the thickness of the culture stratum is one metre at the most, and we saw no trace anywhere of the pockets which are such a prominent feature of the Yang Shao Tsun site.

Chen took us two li north of the village and showed us several exposures of culture soil, which seemed to occur only in isolated patches with a thickness of less than a metre, but there were in these places quite a surprising number of well-preserved specimens of pottery and other interesting artifacts.

Close by and below the northern village gate is a cliff in which the culture stratum is of exceptional thickness, at least two metres. Here I noticed good pottery and also five thin layers of a hard white lime-like substance such as we had occasionally seen at Yang Shao Tsun. Deepest down there were three such thin layers, one 8 cm. above the other. The whole series is uniformly horizontal. The white substance appeared to be broken into small pieces some few cm. long. Half a metre higher up there are two more such layers of the white substance, each layer only 2—3 mm. thick. On the underside of each layer there were seen numerous grasslike plant-impressions. Close to the village gate Zdansky and I dug out three specimens of deer, two small and one large. Of two of them at least, nearly the whole skeleton remained. They were found in typical culture soil along with pottery and masses of pieces of charcoal. It is difficult to imagine for what purpose the prehistoric Pu Chao Chai settlers buried three deer whole and close together, but there was nothing to indicate that the specimens were of a later date.

At one spot near the village gate we found, above an abandoned modern dwelling-cave, a body of yellow loess-like soil containing a number of pieces of pottery, smashed but quite complete.

Of the varied and abundant material that we brought home from this rich site all the ceramics were of the coarse monochrome type. Our search for sherds of the fine thin-walled red ware, with designs in black, which forms such a striking feature of the Yang Shao Tsun site, was unsuccessful; not a single fragment was ever found at Pu Chao Chai.

Subsequently, when collecting alone, Chen found two further sites, which yielded material very like that at the Pu Chao Chai site: Hsi Chun Tsun is near the road from Mien Chih city to Yang Shao Tsun, Yang Ho Tsun is 3 km. NW from Mien Chih city. I never had an opportunity of examining these sites, but the material brought home by Chen is similar to that from Pu Chao Chai, and no painted sherd was ever found at any of these sites. Thus it seems as if we have, in the prehistoric sites north of Mien Chi city, three localities, Pu Chao Chai, Hsi Chun Tsun and Yang Ho Tsun, which, in contrast to Yang Shao Tsun, have no painted pottery. As the coarse monochrome pottery and other artifacts are much the same at all the four sites, there can hardly be any great difference in age between Pu Chao Chai and Yang Shao Tsun.

Some of the Pu Chao Chai material has been described in my previous publications. In the very first article on the Honan finds »An early Chinese culture», Bull. Geol. Survey, China, N:o 5, 1923 the following specimens were described:

- Pl. VI,12—13. Bone needles.
- Pl. VII,6—7. Unpainted pottery.
- Pl. VIII,1. Li tripod.
- Pl. XV,1,6. Unpainted pottery.
- Pl. XVI, 1,8. Unpainted pottery.
- Pl. XVII, 1. Unpainted pottery.

In »Researches into the Prehistory of the Chinese», BMFEA 1943, the following Pu Chao Chai specimens were described:

- Page 48. Pl. 9. Three specimens of the Honan axe.
- Page 67. Pl. 29, 1,2. Bowls of »black pottery».
- Page 68. Pl. 30,4. »Black pottery» bowl.
- Page 68. Pl. 31,4. Sherd of »black pottery».
- Page 69. Pl. 31,1. Large »black pottery» urn.
- Page 70. Pl. 33,3. 34, 1—2. »Black pottery» fragments.
- Page 75. Fig. 20, aa polisher, dd shell saw.
- Page 78. Pl. 35,2. Eggshell vessel.
- Page 128. Pl. 73,7—8. Jade Pen.
- Page 224. Pl. 163,6. Stone knives.
- Page 225. Pl. 164,6. Stone knives.
- Page 225. Pl. 165,1—3, 8. Stone knives.

- Page 232. Pl. 167,2. Li tripod.
 Page 237. Pl. 179,2. Li-Ting tripod.
 Page 238. Pl. 179,1. Li-Ting tripod.
 Page 239. Pl. 180,1—2. Clay figurines.
 Page 257. Fig. 105 a. Li-Ting tripod.
 Page 259. Fig. 107 a. Kia.
 Page 260. Fig. 108 a. Hsien.
 Page 264. Fig. 112 a. Boar's tusk ornament.
 Page 265. Fig. 114 a. Kueh ring.
 Page 266. Fig. 115. Stone ring.

Some of these specimens are also mentioned in this paper, others are not.

POTTERY

Li-tripods.

Pl. 86,2 (K. 6158). Restoration of a specimen of which only the points of two legs and part of the collar were missing. H. 240 mm. Width of mouth 122 mm. Ware grey. The collar is smoothed by an irregular rotary action. The rest of the vessel covered with mat-impressions which are irregularly longitudinal on the legs but coarsely transversal in the crutches between the legs. The inside of the handle smooth but the outside covered with obscure mat-impressions.

Pl. 86,1 (K. 5521). Before restoration reproduced in »Early Chinese Culture» VII,7. Ware light brown, with a thin black layer on the inside and another, less developed, on the outside. Thickness of collar 5—9 mm., thickness of leg 4—7 mm.

Legs and body on both the inside and the outside covered with mat-impressions, which, however, are somewhat obliterated everywhere. Collar smooth, not set-off from body. Colour of surface grey, in certain parts brownish.

Diameter of mouth 137 mm.; total height 263 mm.; height of collar 47 mm. Length of lug 106 mm.; width of lug in lower, narrower part 32 mm., in upper part 40 mm.

Pl. 86,3 (K. 6157). Body and lug complete, collar and two legs only slightly restored. H. 240 mm. Diam. of mouth 139 mm.

Legs, body and lug covered with very distinct mat-impressions. No trace of mat-impression on the inside. Collar smooth with faint signs of rotary action.

The lug, which is slightly raised above the edge of the mouth, is decorated with three furrows at the top and two deep pits at the base.

Pl. 87,1 (K. 5901: 28). Fragmentary and reconstructed Li-tripod.

Diam. of mouth 138 mm. Collar unusually low, 37 mm. high. Thickness of ware 6—8 mm.

Legs and body with mat-impressions both inside and outside. Collar smooth.

Lug decorated with broad oblique grooves.

Legs unusually full and stout.

Pl. 87,2 (K. 5953). Small Li-tripod, one leg restored.

H. 142 mm. Diam. of mouth 91 mm. Height of collar 29 mm.

Body and legs on the outside covered with mat-impressions. The inside shows no mat-impression.

Collar well set-off by a distinct groove, smooth, with unusually fine and regular striae from rotary action.

Lug narrow and thick, decorated with broad oblique grooves like those of Pl. 87,1.

Pl. 87,3 (K. 5971). Points of two legs restored. Before restoration reproduced in »Early Chinese Culture» VII: 6.

H. 164. H. of collar 43 mm. Diam. of the somewhat irregular mouth 96—99 mm. Length of lug 75; width of the unusually broad lug 35 mm. Colour of ware dark greyish-brown. Thickness of leg very variable, 3—7 mm. Legs and body covered with mat-impression pattern. There are also mat-impressions on the inside of legs and body, but less distinct than on the outside. Collar and lug without pattern, but surface rough and irregular. Collar set off from body by a distinct groove.

Colour of surface dark grey to nearly black.

Pl. 88,2 (K. 6614). Big fragment of Li-tripod. Body covered with mat-impressions. Collar smooth with fine concentric lines. Lug with two obliques broad grooves formed by finger-impressions. At the top of the lug a deep vertical slit.

Ware dark grey, 3—5 mm. thick.

Pl. 88,3 (K. 6613). Big fragment of Li-tripod consisting of the handle and nearly the whole leg, to which the handle is attached, as well as small parts of the two other legs.

Ware dark grey and containing big mineral grains. Thickness of wall 3—4 mm. Height of collar 32 mm. Length of handle 75 mm.

Oblique fingermark grooves across the outside of the handle, and cutting through these fingermarks an irregular cross covering the upper half of the handle.

Pl. 89,1 (K. 6611). Fragment of Li-tripod consisting of the lug with adjacent parts. The lug, which is rounded in cross-section, is conspicuous in having at the top, close by the margin of the vessel, an elevated button.

Ware grey and containing numerous quartz grains. Thickness of wall 5 mm.

Pl. 89,4 (K. 6612). Lug and adjacent parts of Li-tripod. The tall, flattened lug has one superimposed button at the top and another at the base.

Pl. 89,5 (K. 3005: 5). Leg-fragment of a Li-tripod, unique in so far that the leg is covered with a lozenge-shaped *basket*-pattern.

Pl. 94,1 a and b (K. 6615) is a fragment of a very large Li. All that remains is the crutches between the legs and nearly half of the base of one of the legs. Assuming that this big Li was approximately of the same shape as, for instance, K. 6158 (Pl. 86,2), its size was unusual, the diameter of the base of the leg of K. 6615 was 170—180 mm. as compared with 80 mm. for the leg-base of K. 6158. Thus this fragment belonged to a Li that must have been more than 500 mm. in height.

Li-Ting tripods.

Pl. 87,4 (K. 5901: 23). An almost complete specimen.

This type of tripod is a transitional form between Li and Ting. With the Li it has in common the hollow legs. The shape of the legs is also of the Li type. However, these

hollow legs do not stand close together as in the typical Li. These tripods have a body mostly of compressed globular shape. Far out, at the circumference of this body, the legs are attached much in the same position as the solid legs of the Ting. The body is crowned by a collar, which in this specimen is exceptionally high, nearly as high as the body itself.

All round the body is attached an equatorial clay band. This band is decorated with obscure finger-impressions.

The collar is smooth, with very fine striae indicating rotary action.

The outside of the body shows faint signs of an almost obliterated basket pattern.

The inside of the vessel, high up on the collar, is covered with a thick crust of white calcareous kettle-fur, showing that the vessel was used for boiling purposes. H. 171 mm. Diam. of mouth 155 mm.

Pl. 87,5 (K. 5901: 10). Specimen with a very low, strongly depressed body, at the equator of which is an angular bend of the vertical profile. The legs are far apart. The collar is unusually high and flaring at the rim. The inside of the vessel is covered with greyish white kettle-fur. The outside flaming from black to red. Thickness of wall 5—10 mm.

Pl. 87,6 (K. 5901: 30). This specimen closely resembles 87,4, but the collar is low and there is no equatorial clay-band. The interior has a heavy deposit of kettle-fur. On the outside the colour ranges from blackish-brown to red.

H. 143 mm., diameter of mouth 152 mm.

Pl. 87,7 (K. 5901: 38). Vessel, almost complete except for the legs, the shape of which has been restored from the remaining bases with the aid of Pl. 87,5. Both body and collar very low. The inside close to the rim is covered with kettle-fur. The outside nearly black. H. 140 mm. Equatorial diameter 173 mm. Diam. of mouth 153 mm.

Pl. 87,8 a and b (K. 6616). Fragment of a tripod of the Li-Ting type. The characteristic feature of this specimen is the equatorial bend, which is decorated with deep vertical cuts made in the soft clay. The thick kettle-fur deposit of the inside is partly fallen away, and underneath is revealed the carefully smoothed black surface of the vessel. Ware brownish grey and containing numerous quartz grains. Wall 4—6 mm. thick.

When looking for bronze vessels similar to these Li-Ting tripods I was informed by Professor Karlgren that in the collection of H. R. H. the Crown Prince there is a bronze tripod (F 6564 of our photographic archives) of a prevalently Ting type but with hollow legs, which furthermore are pointed below much like the specimens described here.

Pl. 98,1 (K. 6619) is an unrestored fragment of a vessel much like K. 6617 (Prehistory of the Chinese, Pl. 178,1). The mouth is entirely missing, so that the specimen cannot be restored. A new feature is two pairs of horizontal incised lines running round the body on a level with the lugs. The cylindrical outside of the body is covered with a mat-impression finer than that of K. 6617. The bottom shows marks of a basket-pattern.

Ware brown with a thin black zone both inside and outside. Thickness of wall 3—4 mm.

Pl. 88,1 a and b (K. 6620) is a fragment of a very big tripod of the same type as K. 6617 and K. 6619. To judge from the dimensions of the bases of the legs, this vessel must have been more than 400 mm. high. A line of marks on the inside.

(K. 6617) helps to show the true position of the fragment. To judge from this evidence, the body of this vessel had approximately the same shape and the legs were bent outwards at the base in much the same way as is actually the case with K. 6617 and K. 6619.

At the base of the leg a superimposed clay-band with finger impressions.

Body and legs covered with a mat-impression less coarse than that of K. 6617.

Pl. 94,2 (K. 6618). This fragment is difficult to interpret.

Ware brown with abundant quartz and other mineral grains. Thickness of wall 7—8 mm.

Across the fragment runs a zone in which the mat-impression has been smoothed out. This zone certainly marks a horizontal belt running round the body. Provided this interpretation is correct, there was above this zone a portion of the vessel that was nearly cylindrical.

The part below the said zone carries a lump-shaped lug, smooth on the underside but with three deep grooves on the upper side. To judge from its shape, this lower part must have been the base of a tripod leg. It is strange that such a lug was attached to a tripod leg, but the conclusion seems unavoidable.

The fragment is too small to allow of a decision being made as to the shape of the vessel, but several features point to a type like Pl. 90,2, which is peculiar in having a well-preserved mat-impression on the collar, which is smooth in nearly all other Li-tripods.

Tentatively this fragment has been mentioned at the end of the description of Li-like tripods.

Low-legged tripods.

There are three fragments of a type of vessel with three very low, solid feet supporting a probably bowl-shaped body.

Pl. 89,6 a and b (K. 6633) is the bottom of one of these vessels with all the three feet preserved.

Ware coarse, containing very big mineral grains. Thickness of wall 5—6 mm. Both the inside and the outside surfaces very rough, nearly black.

Pl. 89,2 (K. 6634). Bottom of another vessel. The low feet radiating instead of concentric, as in K. 6633. The underside of the feet polished, apparently from long use. The outside covered with very coarse mat?-impression. The inside very rough.

Ware very rough, containing mineral grains. Wall 6—7 mm. in thickness.

Pl. 89,3 (K. 6635). Fragment of a vessel much bigger than the two preceding ones. Ware coarse. Thickness of wall 6—8 mm.

The outside covered with a mat?-impression which is almost obliterated near the base. The inside very rough.

Foot placed concentrically, as in K. 6633.

Hsien.

The two vessels reproduced in our Pl. 90 were already described by me in 1923: Early Chinese Culture Pl. XV,1 and 6. They were then fragmentary but have now been reconstructed, Pl. 90,1 and 2, allowing us to combine them into a Hsien-like device, 90,3. The perforated bottom of the upper vessel is shown in 90,1 b.

I quote here the description of these vessels which I gave in 1923:

Pl. 90,1 (K. 5901: 36). »Ware brownish grey. Thickness 5—6 mm. The bottom densely perforated with holes, 7—8 mm. in diam. A row of holes also in the base of the side-wall, as shown in the figure. Lower two-thirds of the vessel covered with vertical basket pattern, which is obliterated in the upper third, the surface of which, together with the collar, is smooth with fine concentric lines indicating wheel work. The vessel has one lug (probably originally two), rectangular-oval as seen from above, triangular in vertical section, with two deep notches on the upper side, but smooth below.

Height 295 mm., diam. of mouth 208 mm.

At first I interpreted this perforated vessel as a kind of colander made for the purpose of straining off some kind of fluid. But an observation made on this specimen turned my thoughts in an entirely new direction. On the underside and also on the outside of the basal part of the side-wall, as far as the holes extend, the bottom is covered with a crust of carbonate of lime of the characteristic kind known from vessels in which boiling and evaporation of water have been going on for a long time. This made me think that the vessel might have used for steaming some kind of food, and that during this process it was placed on some steam-raising vessel. It is even possible that we have found a specimen of this latter vessel in the tripod of the Li type that is reproduced in 90,2. It will be noted that this Li differs from the common form in having, on the inside, a horizontal ring attached to the base of the collar. This ring was apparently there for the purpose of supporting some other vessel standing upon the Li, in which case it seems obvious to suggest that this last-named vessel was of the type shown in Pl. 90,1 a.

I am fully aware that this hypothesis might seem very uncertain, especially as the Li looks much too unstable and weak to support such a high and heavy vessel. But it is interesting that, when in the spring of 1922 I had an opportunity of showing some of my collections to Mr. Hua Shih Fu, a notable scholar residing in Tientsin, he told me that such a combined vessel did exist intended for steaming food known under the character Hsien (𠄎) and that an ancient form of this character shows a high vessel standing on a Li tripod.

It might also be questioned whether this combined utensil is not related to a type of early bronzes illustrated, for instance, in Tao Chai Chi Chin Hsü Lu, Vol. I pp. 1, 2, 4.

These figures show a nearly cylindrical pot standing on a Li tripod. If more detailed research should prove in future that we have here a new instance of similarity between pottery of the Yang Shao culture on the one hand and archaic characters and early bronzes on the other, then this new instance of relationship between the said culture and early phases of Chinese history would be the more remarkable as in that case it is a question of a very complicated and striking device.»

Pl. 90,2 (K. 5901: 34). »Fragment of a Li-tripod of peculiar shape, so far unique in our collection. The legs are more inflated than those of the typical Li. On the inside there is a horizontal ring at the base of the collar.

An explanation of the probable use of this device is given in fig. 3 of this plate.

The whole outside of the vessel, including the collar, is covered with deep mat-impression, over which there are, on the collar, incised horizontal lines. Surface dark.»

Pl. XV,6 of An Early Chinese Culture shows up clearly the unique feature of this Li, namely the annular platform made for supporting the upper vessel.

It is scarcely necessary to point out that there is hardly any probability of those two very specimens having actually been used together. The only evidence is that they were found on the same site and that combined, as shown by Pl. 90,3, they form a device suitable for steaming food and strikingly reminiscent of the Hsien of the early Chinese bronze art and, most remarkable, the archaic Yin form of the character



Hsien. (See Lo Chen-yü: Yin ch'ü shu ch'i, ch'ien pien, 5: 4,1, which rather suggests the high slender build of the Li legs).

Ting-tripods.

Tripods of this type were abundantly in use, to judge from the numerous isolated legs in our collection. Only one specimen was found in a state to allow of reconstruction.

Pl. 91,1 (K. 5901: 9). The material for this reconstruction had been very carefully excavated. It consisted of the three solid complete legs and a very large number of small and brittle sherds, which with painstaking work permitted of a fully reliable reconstruction. H. 233 mm. Outside diameter of flaring rim 283 mm. Inside diam. of mouth 206 mm. Flaring rim 43 mm. broad.

All round the body there is a superimposed clay band decorated by means of finger impressions. The part of the body above this band is nearly cylindrical in shape, the part beneath the band is semi-globular. The whole outside surface of the body (apart from the above-described band) is covered with basket pattern, which radiates from the underside of the vessel. At the mouth there is a flaring rim 43 mm. wide. This rim is on both sides smooth with faint concentric striæ.

The legs are slightly rounded on the inside and flat on the outside, with a raised median band decorated with finger-impressions.

The inside nearly black, the outside of the body brownish grey, legs pale brick-red.

Pl. 92,1 (K. 6706). A fragmentary Ting leg, in every essential feature like the legs of 91,1. But the raised median band and its finger impressions are broader than is the case with 91,1.

Pl. 92,2 (K. 6680). This specimen is like the legs of 91,1 with the exceptions that the finger-impressions on the raised median band are oblique and that at the top of the band there is on each side a circular impression, probably also made with the finger-tip.

Pl. 92,3 a and b. (K. 6625). This is also like the legs of Pl. 91,1 but the leg is more slender and the deep finger-impressions are oblique, as in Pl. 92,2.

Pl. 92,4 a and b. (K. 6624). The contour of the leg is like the preceding, but here the median ridge is very high and there are three rows of impressions, one upon the ridge and two upon the corners of the leg. These impressions were not made with the finger-tip but with some angular (wooden?) instrument.

Pl. 93,7 a and b (K. 6626). A fragmentary leg like the preceding ones, but the outside is smooth with only a deep groove at the base.

Pl. 92,5 a (outside), b (inside) (K. 6623). This is a tripod leg, triangular as viewed from the outside and of rounded triangular cross-section. As viewed from the inside (b) there is in the interior a cavity running down half the length of the leg. Consequently this tripod should be referred to the Li-Ting tripods; nevertheless it is described here since, when viewed from the outside, it exhibits much similarity to a true Ting tripod like Pl. 92,6.

The ware is coarse, containing among mineral particles a brown rock pebble 9 mm. long. Colour of both ware and surface pale brick-red.

Pl. 92,7 a (outside), b (inside) (K. 6622). Ting leg with a small portion of the body. Contour of leg as seen from the outside triangular, pointed below. Cross-section flattened rectangular.

Ware not very coarse, but containing small grains of quartz. Wall of body 6 mm. thick. Colour grey to brick-red.

Pl. 92,6 a (outside), b (inside) (K. 6621). Ting leg with a small part of the body. The external contour of leg rounded and pointed, the cross-section inside flat, outside high and rounded.

Body wall 8—10 mm. thick, ware grey. Surface of leg brick-red.

Pl. 93,3 a (outside), b (inside) (K. 6630). Slender Ting tripod leg with part of the body. Cross-section of leg circular. Leg 30 mm. in diam. at the top, tapering to only 15 mm. below.

Wall of body 5—7 mm. thick. Ware full of quartz sand. Surface nearly black with abundant coating of the «greenish-yellow substance».

Pl. 93,1 a (outside), b (inside) (K. 6632). Ting leg with part of the body.

Leg like Pl. 93, 3 but flattened at the base. Wall of body 5—6 mm thick. Ware rich in quartz sand.

Inside of vessel black, outside grey.

Pl. 93,5 a (outside), b (side view) (K. 6631).

Conical leg of a Li-Ting tripod, to judge from the shallow but quite distinct cavity.

Leg conical, pointed below.

Pl. 93,2 a (outside), b (inside) (K. 6629).

Ting leg. Cross-section oval. This type is like Pl. 92,2 but instead of the raised ridge we find here a deep median furrow produced step-wise by aid of an angular, probably wooden instrument.

Pl. 93,4 (K. 6627). Lower half of tripod leg like 93,1 not only flattened but laterally widened below.

Pl. 93,6 (K. 6628). Ting leg like 93,4 but less widening below. Colour dark grey.

Large vessel with pointed bottom.

Pl. 93,8 (K. 6664) a (outside), b (inside). The pointed bottom of a very tall, slender vessel of a type well known from fairly complete specimens found in the Ho Yin sites. This small fragment is in every feature — shape, wall, colour and string decoration on the surface — identical with the Ho Yin vessels (See description of one of them in Pre-history of the Chinese P. 230—231, Pl. 166,2.)

Bowls.

Pl. 95,1 (K. 5901: 21). Restored fragment of a bowl with nearly straight profile and slightly thickened and flattened rim. Colour pale-brown to grey.

H. 48 mm. Outside diameter of mouth 192 mm. Diam. of bottom 85 mm.

Pl. 95,2 (K. 5901: 20). Restored fragment of a bowl with slightly flaring rim. H. 55 mm. Diam. of mouth 142 mm. Diam. of bottom 68 mm. Surface colour ranging from greyish-brown to black. The ware contains numerous seed-impressions worth a close examination.

Pl. 95,6 (K. 5901: 15). Restored fragment of a very coarse and irregular bowl. H. 60 mm. Diameter of mouth 127 mm. On the outside is a vertical basket pattern. Colour grey with yellow spots.

Pl. 95,3 (5901: 13). Restoration of a large fragment (about half the vessel) of a high bowl. This is the first specimen here described of the type of ceramics that has been named »the black pottery».

The ware is a plastic grey clay without any visible intermixture of mineral grains.

A little below half the height there is a zone with three incised horizontal furrows. Below the lowest of these furrows there is an abrupt break in the profile of the vessel: with a concave profile the vessel narrows down to a smaller diameter at the bottom. Above the zone of the three furrows the profile is also concave all way up to the rim, which is gently flaring.

The upper part, including the spaces between the furrows, is polished and has a shiny blackish surface. On the inside also the polish reaches down to the same level as on the outside. The lowest part of the vessel is very rough, with deep irregular cuts in the plastic clay.

H. 80 mm. Outside diameter of mouth 100 mm. Diam. of bottom 62 mm.

Pl. 95,4 (K. 5901: 14). This small high bowl closely resembles Pl. 95,3, but the surface is grey on account of the inferior polish, there are no incised furrows, the break of the profile is gentle and above it the wall is straight cylindrical all the way up to the flaring rim.

Both the inside and the outside show marks of irregular wheel action.

H. 75 mm. Outside diameter of mouth 112 mm. Diam. of bottom 62 mm.

Pl. 96,4 (K. 5901: 42). Reconstruction of a fragmentary vessel of coarse quality.

Ware brown, fine. The vessel may be referred to the »black» group as one of its crudest specimens. Surface black to brown, irregular.

H. 110 mm. Outside diameter of mouth 210 mm. Diameter of bottom 124 mm.

Pl. 97,4 (K. 5901: 24). Coarse high bowl, slightly reconstructed.

The outside surface shows marks of a rectangular basket pattern. Colour brick-red to brownish grey.

H. 102 mm. Outside diam. of mouth 177 mm., diam. of bottom 103 mm.

Pl. 96,3 (K. 6663). Reconstruction of big high bowl shaped on the potter's wheel.

Rim flaring. Outside blackish grey with slight polish. May be regarded as an inferior specimen of the »black group».

H. 140 mm. Outside diam. of mouth 218 mm.

Pl. 96,1 (K. 5901: 17). Big and heavy bowl or basin standing on a low ring-shaped foot.

The outside reddish-grey, the surface fairly well polished. 18 mm. below the flaring rim two impressed parallel horizontal lines. Half-way down there is an indication of a single similar line.

The inside brick-red, rather rough, surface uneven.

Outside diam. of mouth 275 mm.

Pl. 102,1 (K. 5901: 19). Small bowl with one big lug.
Vessel hand-made and very irregular. The outside has an inferior black polish.
H. 70 mm. Outside diameter of mouth 110 mm.

Pl. 97,1 (K. 3005: 3). Mouth fragment of a big high basin with rim turned inwards.
The outside of the vessel is covered with mat-impressions but the uppermost zone,
30 mm. wide, is smooth, as is also the rim, which is bent inwards and is 30 mm. broad.
Thickness of wall 5—6 mm.

Pl. 98,3 (K. 6666) is a rim-fragment which should also be counted among the high
basins with a vertical wall.

Ware brownish and very coarse, with big mineral grains. Wall 7 mm. thick. The outside
surface nearly black, the inside spotted brownish-grey.

The vertical wall carries a horizontally placed lug with a wide opening below and a
small opening above. On each side, at the base of the lug, there are two finger-impressions,
and scattered over the outside on a level with and below the lug are deep triangular im-
pressions.

On the top of the rim a deeply incised irregular cross-pattern.

Pl 99,5 (K 3005: 2) is a unique and interesting specimen of the »black pottery».

The ware is the usual fine brown with a thin centre of grey.

The inside is black, and so is also the uppermost part of the outside, which is smooth
and shiny. The lower part, which is covered with mat-impression, is grey.

The profile (5 b) is very accentuated. The neck is wide, vertical in profile with a very
slightly flaring rim and a raised rib in the lower half.

Some distance below the base of the neck there is a sharp break in the profile
accentuated by a superimposed ridge, decorated with oblique impressions made not with
the finger but probably with a wooden stick. This ridge is superimposed upon the mat-
impression, which extends a little above the serrated ridge.

Further down there is a band where the mat-impression is obliterated.

Urns.

Pl. 96,2 (K. 5901: 2). Urn with a rounded bottom elevated in the centre and a very
wide mouth. The vessel is heavy, the wall very thick. The whole urn is hand-made and
very irregular. The inside rough, the outside covered with irregular mat-impressions.

Margin of the mouth bent outwards, decorated on the outside with irregular vertical
notches.

Colour dark grey, in parts nearly black.

H. 185 mm. Outside diameter of mouth 178 mm.

Pl. 98,4 (K. 6678). More than half of an urn very like Pl. 96,2, but better made and
more regular.

Ware brownish grey. Thickness of wall 4—6 mm.

Vessel probably hand-made but the inside is smooth, with striations in various
directions. The outside has a mat-impression, which is vertical on the side and irregular
on the bottom.

Outside colour nearly black.

Pl. 98,2 (K. 5901: 3). Early Chinese Culture XVI,8. Urn with fairly wide mouth,
to which is attached a thin, broad handle.

Ware grey and containing quartz and other mineral grains. Wall 4—5 mm. thick.

Collar flaring, smooth, with very regular rotation striae on both the upper and the under side.

Lowest part probably also smooth. Most of the outside covered with a very distinct rhombic basket pattern.

Colour greyish black.

Pl. 99,4 (K. 5901: 4). Base of a vessel like Pl. 98,2. Wall 2.5—3 mm. thick. Ware brown. The outside of main part of vessel has a basket pattern like Pl. 98,2 but nearly square. The outside of the bottom and the basal part of the side are scratched with some whisk-like instrument. On the inside of this basal part are distinct traces of wheel-action.

Inside colour nearly black. Outside brownish grey.

Pl. 100,6 (K. 6655). Fragments of a very big vessel (diam. of mouth approximately 220 mm).

Ware brown, very coarse with small lumps of quartz sandstone. Wall 7—8 mm. thick. Margin thickened, square in cross-section.

Outside black, covered with irregular mat-impressions.

Pl. 101,11 (K. 6676). Marginal fragment of a vessel, dull black both inside and outside.

Vessel certainly hand-made. Margin simple, not thickened. Outside covered with a mat-impression, which is nearly obliterated near the margin.

Ware brown. Wall 6 mm.

Pl. 101,10 (K. 11232: 2). Fragment of a vessel like Pl. 101,11. A superimposed clay band, 23 mm. broad, with the same mat-impression as the rest of the outside.

Pl. 100,5 (K. 6656). Two fragments of a very large hand-made vessel. Ware grey, and containing small lumps of quartz sandstone.

Vessel hand-made, the inside very coarse and irregular. On the outside is a largely obliterated mat-impression. Superimposed are five broad clay bands with irregular but distinct mat-impressions. Mouth slightly flaring. Narrow oblique finger-impressions on the outside.

Surface light grey.

Pl. 100,4 (K. 6662). Fragment of small hand-made urn. Ware grey and containing quartz grains. The outside is covered with a fine mat-impression. Mouth slightly flaring. Below the margin a superimposed band, at the base of which is the upper attachment for the handle. Its lower attachment is above the lower clay band.

Colour light grey, both inside and out.

Pl. 104,2 (K. 5901: 40). Huge vessel. H. 346 mm. Outside diameter of mouth 252 mm. Diameter of bottom 155 mm.

Outside covered with rhombic basket impressions. Mouth gently flaring.

Colour pale-brownish.

Pl. 100,1 (K. 6661). Marginal fragment of a big urn like Pl. 104,2 but the outside is covered with an oblique linear basket pattern.

4.5 mm. below the margin is a clump-like prominence with a vertical notch. The inside is smooth. Mouth slightly flaring. Colour light grey.

Pl. 100,2 (K. 6677). Marginal fragment of big urn, in shape probably like Pl. 104,2, but the outside is covered with a regular mat-impression, which extends also on to the underside of the fairly broad flaring margin.

Pl. 107,4 (K. 3005: 1). Nearly half of the upper part of a big bowl.

Ware brownish. Wall 4—5 mm. thick.

The outside is covered with a vertical basket pattern. The upper part of the outside above the lug is smooth. Big vertical lug, at the top of which are four large vertical streaks cut in the still soft clay. Rim slightly flaring.

The inside very uneven. The entire vessel hand-made.

Pl. 97,3 (K. 5901: 11). Restored specimen of small urn. H. 123 mm. Outside diam. of mouth 140 mm. Colour pale reddish.

The outside covered with an irregular linear basket pattern.

Mouth gently flaring.

Pl. 97,2 (K. 6241). Restored small urn with high vertical collar and two narrow lugs, circular in cross-section.

The outside of the body covered with mat-impressions.

Colour brownish grey.

Pl. 90,1 (K. 5901: 36). This is the vessel that we have described under the heading »Hsien» as having probably served as the upper half of this composite utensil. It is perforated in the bottom with numerous holes: Pl. 90,1 b; and the bottom, as well as the perforated basal part of the side wall, are covered with a film of white kettelfur (visible on both figs. 1 a and 1 b of Pl. 90). It is on account of the perforation and this coating of lime that I have suggested the said use for this vessel, which in shape is a true urn, It has already been reproduced in my »An Early Chinese Culture» XV,1 and I have already given a full quotation from the description (l. c. p. 60—61) under »Hsien». Reference has been made to this vessel here because it may offer a clue to the fragmentary but very interesting vessel which now follows:

Pl. 103,2 (K. 5958). This vessel was also reproduced in »An Early Chinese Culture» XVI,1. Later on a few more sherds were found and the present photograph is from another side.

»Ware light grey. This large vessel is of an exceedingly fragile build, the ware being only 2—4 mm. in thickness. The specimen was collected in a large number of fragments and the bottom was missing. However, at the same place were found several equally thin-walled bottoms of the same ware and surface pattern, and to judge from those it seems probable that the vessel had a flat bottom with the side-wall smooth nearest to the bottom. The larger part of the outside of the side-wall is covered with a vertical basket pattern, over which there run four horizontal incised lines below the equator and six others half way from the equator to the base of the collar. Between the uppermost of these lines and the collar is a smooth belt, where the basket pattern is entirely obliterated. In this smooth belt there are three incised lines. Also the collar is smooth, both on the in- and outside, with fine striae indicating wheel-technique. The inside of the vessel is irregular and pitted. Apparently the vessel was formed by hand (inside

a frame of basket-work?) and only the collar and the uppermost smooth part of the outside were given their final shape by means of the wheel.

Equatorial diam. 270 mm.; diam. of mouth 172 mm.; height of complete vessel approximately 360 mm.»

The only essential difference between this vessel and Pl. 90,1 is that Pl. 103,2 bears no indication of any lugs. There is no way of determining whether Pl. 103,2 had a sieve-hole bottom like that of Pl. 90,1.

K. 6319 is the biggest of all the vessels from Pu Chao Chai. It was beautifully reproduced and well described in »An Early Chinese Culture» p. 65—66 and XVII,1, to which we refer.

Pl. 103,1 (K. 5901: 29). There is possibly a certain similarity in shape between this urn and K. 6319, as there is in both cases a broad smooth zone below the collar. But K. 6319 is a vessel with a wide mouth, whereas Pl. 103,1 shows basal fragments of a narrow collar.

Pl. 103,1 is of heavy build. The wall, of brown ware, is 4—7 mm. thick. Up to a height of 280 mm. the vessel is covered with an oblique basket pattern. The maximum width, 253 mm., is at 220 mm. above the base.

At 280 mm. above the base there is a sharp bend in the profile, and from here to the base of the narrow collar the surface is smooth.

Pl. 107,2 (K. 6667) is a fragment of a large vessel, probably like 103,2 but with a broad lug. In this case the basket design runs obliquely across the outside of the vessel. Ware brownish, wall 4—5 mm. thick.

Pl. 100,3 (K. 6658) is nearly half of the upper part of a vessel not unlike 103,2 but with the upper smooth zone of the body much broader, reaching down to the equator of the vessel. Fairly high up on this smooth belt there are three incised lines close together.

The flaring collar is 27 mm. broad. It shows beautiful wheel-marks, which are entirely absent on the body, the lower part of which is covered on the outside with a nearly vertical basket pattern.

Ware brownish-grey, wall 3—4 mm. thick.

Pl. 107,1 (K. 6659) is a marginal fragment of a large broad vessel like 103,2 but unusually broadly built.

The collar, 50 mm. high, stands vertical with rounded, thickened margin and fine regular wheel-marks. Next to the collar there is a nearly horizontal zone, smooth with very fine wheel-mark striae. Below this zone begins a well-defined basket pattern.

Ware brownish-grey, wall only 2—4 mm. in thickness.

Pl. 105,1 (K. 6660). Big fragment of the upper part of an urn in shape like the preceding ones, but the slightly flaring collar passes gently over into the body which, like the collar, is smooth and polished. Not far below the collar there is a zone of four incised lines. On the inside of the collar there are faint traces of rotary action. The inside of the body is irregular and apparently hand-made.

Ware brown. Wall 3—5 mm. thick. This is a typical case of »black pottery», shiny black on the outside and dull black on the inside.

Pl. 105,3 (K. 3005: 4). Upper half of a small urn. Wall 2—3 mm. thick. Upper part of body globular. Collar nearly cylindrical, the uppermost part slightly flaring. The whole vessel shows very distinct marks of wheel-action.

Surface blackish grey.

Pl. 105,2 (K. 6673) is a beautiful sherd of »black pottery». The ware is brown, the wall 3—4 mm. in thickness. The whole sherd shows very distinct wheel-action. The outside carries two concentric impressed lines, which were formed in the still soft clay before the black slip was applied.

Small egg-shell urns.

Among the Pu Chao Chai pottery there is a small elegant egg-shell vessel reproduced in »Prehistory of the Chinese» Pl. 35,2.

Pl. 95,5 (K. 6647) is a small, low vessel with thin walls (1.5—2 mm.). Ware grey, very fine. The whole vessel distinctly wheel-made.

The body is low, truncated bi-concave. On the top of this body there was a very wide neck, of which only small fragments are preserved.

To judge from the basal fragments, there rose from the equator of the body three broad handles, which were probably attached to the rim of the neck.

There is no slip, and the surface of the ware, with its distinct concentric wheel-marks, is visible everywhere. Max. diam. 102 mm.

High-footed pieces.

We shall now describe a number of specimens which are plates or flat basins placed upon a more or less high hollow foot. They all belong to the »black pottery» group, with the exception of Pl. 106,3, which without any slip retains the grey of the ware.

Pl. 106,3 (K. 6650). This is a complete »high foot» upon which was superimposed a plate or bowl, of which only a small basal part is preserved.

The ware is very fine, grey with a brown tinge in the outer parts. The foot shows concentric striation from wheel-action both inside and outside. The superimposed plate seems to be hand-made.

Diameter of the base of the foot 102 mm. Height of the foot 52 mm.

Pl. 106,2 (K. 6645). A »high foot» like 106: 3, but larger and of coarser make.

The ware is deep brown. This coarsely hand-made vessel was covered with a paste of black slip, which is very thick at the junction between the foot and the superimposed basin.

Diam. of base of foot 128 mm. Height of foot 105 mm.

Pl. 106,4 a (from above) 4 b (from below) (K. 6646).

Low type of high foot. In its present state the base itself is fragmentary and secondarily smoothed by grinding, but the reduction in height can amount to only a few mm.

A considerable part of the base of the superimposed bowl is preserved (4 a).

The fine ware is of the usual brown colour. The inside and outside of the foot and the underside of the bowl are covered with black slip. The inside of the bowl rather rough and free from slip, showing the brown of the ware.

Pl. 105,5 a (upper side), 5 b (under side). (K. 6670) is a fragment of one of the plates that rested upon the high-footed pedestals.

The fine ware is of the usual brown colour. It is covered all over with a thick greyish-black slip with fine polish.

Viewed from above (5 a), the plate shows a flat bottom 23 mm. below the flaring rim. From this bottom the vessel rises with a rather steep slope to the sharply set-off rim, which is 22 mm. broad, horizontal in the inner part but bent slightly downwards in its outer part.

Viewed from below (5 b), the fragment exhibits a double wall, the bottom of the plate and an outer wall, which forms the uppermost part of the »high foot».

A queer feature that deserves further study is a fine reticulate pattern on both the upper and the under side of the bottom of the plate. Probably it is simply an aggregate of finger prints, but there are features which rather suggest some kind of fine textile.

Approximate diameter of plate 155 mm.

Pl. 106,1 a (from above), 1 b (from below) (K. 6672).

This is a much larger plate, but apart from the size it is very like the preceding specimen.

It is of the usual fine ware, which in this case is greyish-brown with dark spots. The vessel is covered all over with a black slip, which locally is of considerable thickness and gives the surface a greyish-black lustre.

On the underside there are concentric lines indicating wheel-action, but the upper surface is worked by hand.

The lower view (1 b) shows the two walls, the bottom of the plate and the vertically placed uppermost part of the high foot.

The central part of the bottom of the plate is nearly level. Its rise to the margin is more gentle than in the case of Pl. 105,5. The rim of the vessel is 19 mm. broad and horizontally placed; it projects outwards, but also inwards.

Enigmatic vessels.

Pl. 104,1 (K. 5926). In its present shape this specimen is the product of masterly reconstruction. When found, it was little more than a heap of numerous small fragments. Fortunately, however, a vertical series of them fitted together from the bottom to the top of the present reconstruction, as shown in Pl. 104,1. The big round hole in the centre is quite genuine. The figure also shows the projecting contours of two other holes, which are largely reconstructions. However, there are slender fittings all the way to the hole to the right of the figure, and of this hole a minute part of the circumference is preserved. The distance between the two holes being one fourth of the circumference of the vessel, it may be considered to be proved that there were four big holes along the equatorial circumference of the vessel. In fact, considerable parts of the third and fourth holes are also preserved, though none of these fragments fit direct on to the main group of combined sherds.

We have not reached the actual base of the vessel and we do not know whether there was a bottom or whether the vessel might possibly have been open below. At any rate it seems unlikely that the vessel was much deeper than is shown in the figure.

The top of the vessel is also an unknown feature. As the figure indicates, the open space at the top is not very wide. Four sherds reach to the remaining opening, and their

upper edge is not more than 45 mm. from the axial line of the vessel. There is no evident bend above this edge, so that we cannot decide whether there was a mouth at the top or a rounded cupola-shaped closed contour.

Height of vessel in its present fragmentary shape 388 mm, widest diameter 305 mm. in the upper half of the truncatedly pear-shaped vessel.

Thickness of wall 9 mm. at the base, 6 mm. at the top.

Vessel hand-made. Rough and irregular on the inside. Outside covered by an obsolete mat-impression, which also recurs on the six broad horizontal superimposed clay-bands.

We know too little to express any opinion as to the use of this strange vessel. Was it a fanciful decorative urn or perhaps a device for smoking some kind of food?

Pl. 94,3 (K. 6642). This is a fragment of a basin with flat bottom resting upon a cylindrical foot.

A unique feature of this basal side-wall is that, below, it is turned inwards, forming a flat ring, 20 mm. broad, upon which rests the whole vessel.

Close beneath the bottom there were two round holes in the side-wall, 30—35 mm. wide. What remains of these holes is marked by the letter »h« on the plate. For what purpose these two windows were made it is hard to tell.

The ware is brown. Wall 6 mm. thick. The outside is covered with a rhombic basket pattern, which is also very distinct on the underside of the bottom.

Diameter of bottom 200 mm.

Pl. 102,3 a, b, c (K. 6713). Reconstruction of a basin which was probably somewhat similar to Pl. 94,3.

Only the basin itself could be reconstructed, and, as shown in Pl. 102,3 a, it recalls a big flowerpot with slightly tapering sides and a nearly flat bottom.

High up on the side is a horizontally placed lug with three deep notches surrounded by fingerprints.

Apart from a smooth belt 30 mm. broad under the margin, the basin is covered with a nearly vertical linear basket pattern.

In addition to the reconstructed upper part there are four sherds which do not fit to the basin, but which, to judge from the colour of the ware, the thickness of the wall and the linear basket pattern, certainly belong to the basal part of this vessel. One of these sherds is reproduced in Pl. 102,3 b. Another sherd 3 c proves that the basal part was at least 112 mm. high. These foot-pieces of the vessel carry on the outside the same linear basket pattern as the basin itself.

There is a difference between Pl. 94,3 and this vessel in that Pl. 102,3 has no lower bottom at the very base. However there is in this foot-piece a singular feature, as shown in Pl. 102,3 b, viz. a vertical contour proving that there was an opening running down to the very bottom and admitting entrance into the hollow foot.

Diameter of basin at the mouth 240 mm. Height of basin 165 mm.

Pl. 102,2 a and b (K. 5901: 25). A hemispherical basin with flaring rim.

Ware brownish-grey. Thickness of wall 6—8 mm.

The whole of the outside is covered with a deep and distinct mat-impression, which is largely obliterated on the outside of the flaring rim. The inside is smoothened by some kind of irregular rotary action.

High up on the side there is a horizontally placed lug with four vertical notches. As only half of the basin is extant we cannot decide whether there was a corresponding lug on the other side.

The mysterious feature of this vessel is shown by the two *sh*'s of 102,2 b. These contours indicate the existence of two (probably four) large holes in the bottom of the vessel.

Sundry small ceramic objects.

Pl. 107,3 (K. 6639). This is a sherd probably belonging to a big urn.

Ware of the usual brown colour. Thickness of wall 5—6 mm. The outside covered by a nearly horizontal basket pattern.

The characteristic feature of this sherd is the three unusually deep finger-impressions, which have squeezed up the soft clay to form high circular rings.

105,4 (K. 6668) is a small marginal sherd from a big basin.

Ware brown. Thickness of wall 6 mm.

Rim flaring. The surface of the outside polished nearly smooth, with two concentric lines incised in the plastic clay. Underneath the lower of these lines there are horizontal oval impressed dots, probably in a double row.

Pl. 101,8 (K. 6689). Small coarse sherd covered with button-like superimposed clay dots.

Pl. 101,5 (K. 6637). Miniature urn, broad and low. Equatorial diameter 68 mm. Height 42 mm. Ware dark grey, very coarsely executed.

Pl. 101, 3 and 4 (K. 6640 and K. 6641). Two high and slender miniature urns.

Pl. 101,3 H. 64 mm. W. 47 mm.

Pl. 101,4 H. 64 mm. W. 44 mm.

Ware brownish-grey. Execution very crude. On both these vessels, high up on each side of the neck, there are two small holes facing each other.

These two vessels offer an interesting parallel to a group of 15 exactly similar miniature urns which were found close together at Yang Shao Tsun under circumstances making it probable that they formed some kind of votary deposit.

Pl. 101,1 and 2 (K. 6693 and K. 6675). Two miniature high-footed pieces, K. 6693 of very pale brick-red ware, K. 6675 of brownish-black ware. Both are hand-made, but the underside of the foot of K. 6675 shows some traces of rotary action. At the top of K. 6693 there was a small plate or bowl, of which only the very centre is preserved.

The columnar part of K. 6675 is broken at the top and nothing remains of the superstructure. This columnar part is slightly wider half way up. It is perforated by four vertical rows of small holes, each consisting of 3 (or 4?) holes.

Pl. 101,9 (K. 6638). A heavy solid piece formed of brick-red ware. In the bottom there is a not very deep, irregular hole; from the top a big conical cavity reaches down to one third of the length of the piece.

Height 97 mm.

Pl. 101,6 and 7 (K. 6692 and K. 6710). Two circular clay objects, K. 6692 55 mm. and K. 6710 58 mm. in diam. The upper side is low, conical and polished. On the underside is a short irregular plug.

Possibly these objects served as stoppers for some kind of vessel.

Pl. 99,1 a—c (K. 6665). A clay disc much larger (diam. 104 mm.) than the two just described, but in a general way similar. The smoothed side is nearly flat, the plug is broken and may have been sufficiently long to have formed a handle. Possibly this was a tool for polishing.

Pl. 99,2 a—c (K. 6652). This is a very roughly shaped object with a smooth basal surface and a big hole, which seems to fit the fore-finger. Possibly this also was a polishing instrument.

Clay figurines.

An interesting element in the Pu Chao Chai furniture consists of two small clay figurines, both made of the soft fine greyish-brown clay with which we have become familiar during our study of a large part of the Pu Chao Chai ceramics. They were both described in »Prehistory of the Chinese» P. 239, Pl. 180.

Spinning whorls and stone disc.

Pl. 108,1 (K. 1952: 206). Big flat spinning whorl cut in dark grey steatite (?). Fine polish, evidently due to long wear. Central hole 9.5 mm. in diam. This hole is cut elegantly and exactly cylindrical. Thickness of disc. 6.5 mm. Diameter 51 mm.

Pl. 108,11 (K. 11230: 11). Whorl like Pl. 108,1 but much bigger; thickness 11 mm., diameter 67 mm. Central hole slightly conical, one side 10 mm., other side 8.5 mm. Rock red calcareous sandstone.

Pl. 108,9 (K. 1952: 201). Fragmentary whorl cut in yellowish-white dolomite (?) with brown coating upon natural surfaces. Shape somewhat irregular owing to the natural cleavage of the rock. Thickness of disc 10—14 mm., diameter 57 mm. Hole conical, 11—14 mm. in diameter.

Pl. 108,7 (K. 917). Large and unusually heavy spinning(?) whorl. Cross-section of the disc flatly elliptical, 16 mm. at the centre, 6 mm. close to the edge. Hole 11 mm., widened at both ends by hammering, which has also affected large parts of the surface as is clearly visible on the figure. Diameter of disc 68 mm.

Pl. 108,2 (K. 3002: 108). Whorl of clay. 10 mm. thick, diameter 45 mm. Diam. of hole 4.5 mm.

Pl. 108,3 (K. 3002: 98). Clay whorl. Reddish ware. 9 mm. thick, diam. 38 mm. Diam. of hole 3 mm.

Pl. 108,4 (K. 3002: 107). A unique specimen of a clay whorl, decorated on one side with a circular double row of small impressed dots and with a cross formed by similar double rows of dots. 12 mm. thick, diam. 41.5 mm. Diam. of hole 5 mm.

Pl. 108,5 (K. 3002: 101). Clay whorl with black surface. 12 mm. thick, diameter 36.5 mm. Diameter of hole 4 mm.

Pl. 108,6 (K. 3002: 106). Unusually thick clay whorl. 16 mm. thick, diameter 37 mm., diam. of hole 5 mm. On the side shown in the photograph there is a line deeply incised in the clay.

Pl. 108,8 (K. 3002: 97). Clay whorl of pale-grey ware and surface. In shape this specimen is quite unique: one side is level and the other dome-shaped. Consequently the whorl is very thin at the outer circumference. Thickness at centre 11 mm. Diameter 44 mm. Diameter of hole 4.5 mm.

Pl. 108,10 (K. 3002: 104). Clay whorl, reddish in colour. 12 mm. in thickness, diameter 34 mm. Hole irregular. On the photographed side are radiating impressed marks, on the reverse side narrow irregular criss-cross lines. On the outer circumference runs a deep irregular incised furrow.

Pl. 108,12 (K. 3002: 110). Clay object (spinning whorl?) with a double-conical hole and rounded outside circumference. Diameter 30 mm. Colour brownish-grey.

Pl. 108,13 (K. 3002: 114). Sandstone disc, polished both on the flat sides and on the cylindrical circumference. 7—8 mm. thick, diam. 78 mm.

Rings of stone and clay.

Pl. 109,1 (K. 1952: 241). Fragment of ring of green steatite. 9 mm. wide, 5 mm. thick, diam. approximately 51 mm.

Pl. 109,2 (K. 1952: 242). Fragment of ring of greenish black steatite. 13 mm. wide, 5 mm. thick, diam. appr. 76 mm. At one end there is a hole of double conical shape, and this end is cut even and smooth. At the other end is a shallow unfinished hole.

Pl. 109,4 (K. 1952: 244). Ring-fragment of greenish-grey steatite. 22 mm. wide, 7 mm. thick, diam. appr. 90 mm.

Pl. 109,5 (K. 922). Ring-fragment of yellowish white marble. 19 mm. wide, 8 mm. thick, diam. appr. 100 mm. The ends of the fragment are irregularly rounded as if by long wear. Below the central »C» in »P. C. C.» a shallow beginning of a boring is clearly visible on the figure.

Pl. 109,6 (K. 1952: 240). Fragment of a big stone ring, T-shaped in cross-section. The rock is very coarsely crystalline in black and white and consists of whitish plagioclase intermixed with greenish black hornblende. In spite of the hard and heterogeneous material the ring is elegantly cut into an intricate shape and the polish is fairly perfect. 23 mm. wide, 23 mm. broad, outside diameter approx. 102 mm.

Pl. 109,7 (K. 1952: 248). Fragment of a broad and thin Yuan ring of a green dense volcanic(?) rock. 28 mm. wide, 6 mm. broad, outer diam. appr. 90 mm.

Pl. 109,8 (K. 1952: 246). Fragment of a broad ring of soft talcous rock whitish in colour. Cross-section rounded rectangular, 10 mm. broad, 13 mm. wide, outer diameter appr. 66 mm.

Pl. 109,14 (K. 1952: 247). Fragment of a ring of white porous marble. 7 mm. wide, 20 mm. broad. The outside convex, the inside flat.

Pl. 109: 3 (K. 1952: 245). Fragment of a clay ring. Surface like black polished leather, which is the characteristic of the highest class of »black pottery». 15 mm. wide, 7 mm. broad, outer diameter appr. 80 mm.

Pl. 109,9 (K. 3002: 74). Fragment of a slender clay ring. Hard pale grey ware, colour of surface like the ware. 6 mm. wide, 5 mm. broad, diam. appr. 64 mm.

Pl. 109,10 (K. 3002: 73). Fragment of a slender clay ring. Yellowish grey ware and surface. 6 mm. wide, 6 mm. broad.

Pl. 109: 11 (3002: 75 a). Fragment of a blackish clay ring.

Pl. 109: 12 (3002: 75 b). Fragment of a clay ring, ground flat upon one side. Black-pottery surface.

Pl. 109,13 (K. 3002: 76). Flat clay-ring with a narrow slit, a type mostly cut in stone and common in sites of early Chinese dynasties under the name of 玦 *kie*. Stone-rings of this type are also very common in the Protohistoric sites of Tonkin. 9 mm. wide, 3 mm. broad, outer diam. 24 mm.

Arrow points.

A. Flat triangular arrow points.

Pl. 110,1 (K. 11156). Rock grey slate. Lower part of sides faceted L. 32 mm., W. 20 mm.

Pl. 110,2 (K. 1952: 229). Grey slate. Sides faceted. Rear end very thin, with rounded corners. L. 40 mm., W. 19 mm.

Pl. 110,3 (K. 11162). Red slate. Sides faceted. L. 34 mm.

Pl. 110,4 (K. 11154). Unusually large arrow point of red slate. Sides faceted, back square cut. L. 60 mm., W. 23 mm.

Pl. 110,6 (K. 3002: 70). Bone point. Sides faceted. Back square cut. L. 36 mm. W. 21 mm.

Pl. 110,7 (K. 3002: 69). Point of a boar's tusk. Sides on the inside of tusk broadly faceted. Back square. L. 24 mm. W. 14 mm.

Pl. 110,5 (K. 3002: 35). Grey slate. Sides faceted, as is also the indented back. L. 37 mm., W. 16 mm.

Pl. 110,16 (K. 1952: 232). Very big, slightly damaged arrow point. Dark slate. Sides faceted. Length 60 mm.

B. Triangular points with tang and diamond cross-section.

Pl. 110,8 (K. 11181). Bone arrow head. Point and end of tang missing.

Pl. 110,9 (K. 3002: 18). Green talcose rock. Tang conical, running out into a point.

Pl. 110,10 (K. 3002: 14). Dark-grey schistose rock.

Pl. 110,11 (K. 11168). Black slate. Tang consisting of a broad cylindrical basal part and a narrower conical point. L. 64 mm., W. 20 mm.

Pl. 110,12 (K. 3002: 21). Short, broad point of grey schistose rock.

Pl. 110,15. (K. 3002: 27). Slender point cut in grey talcose schist.

Pl. 111,3 (K. 11177). Bone point with broken cylindrical tang.

Pl. 111,13 (K. 11189). Slender bone point with strong cylindrical tang.

C. *Points with circular or oval cross-section.*

Pl. 111,1 (K. 3001: 7). Bone point, cylindrical and nicely polished with bluntly rounded point. Tang very rough and irregular.

Pl. 111,8 (K. 11186). Bone point, cylindrical but hollow on back.

Pl. 111,9 (K. 3007: 6). Bone point of oval cross-section with long conical tang.

D. *Points of triangular cross-section.*

Pl. 110,13 (K. 11175). Dark slate. The three sharp-cut facets have the shape of elongated equilateral triangles with very gently convex sides. Tang conical, sharply set-off.

Pl. 110,14 (K. 3002: 16). Much worn fragment of arrow head cut in impure steatite.

Pl. 111,7 (K. 11208). Bone point, a miniature replica of K. 11175. The edges rounded at the back of the head. Tang conical. L. 58 mm. W. 7 mm.

Pl. 111,10 (K. 3002: 41). Sharp-cut triangular point of dark grey slate. Tang formed by facetting the edges of the posterior part of the head.

Pl. 111,11 (K. 3002: 24). Slate arrow head with blunt point with head gradually passing into the tang.

Pl. 111,12 (K. 3002: 54). Broken bone point with very strong cylindrical tang.

E. *Bone points of miscellaneous shapes.*

Pl. 111,2 (K. 3002: 57). A fragmentary object diamond-shaped in cross-section. Use uncertain.

Pl. 111,4 (K. 11164). Small bone object with diamond-shaped outline and rectangular cross-section. Use uncertain.

Pl. 111,5 (K. 11179). Bone point with flattened oval cross-section and conical tang.

Pl. 111,6 (K. 3002: 66). Bone point of somewhat irregular shape.

F. *Mussel-shell arrow point.*

Pl. 114,17 (K. 11201). Arrow point cut from a piece of whitish, softly iridescent mother-of-pearl. Cross-section triangular with rear side flat and the two visible sides deeply concave owing to the structure of the shell. Tang with a broad basal part and a distal conical part.

Deer antler points.

In the Pu Chao Chai material there are three deer antler points Pl. 112,1, 2, 3, that show signs of wear which in at least one case is certainly due to human action. Nevertheless it should be emphasized that in all the three specimens the thick end is merely an old fracture without any mark of the human hand.

Pl. 112,1 (K. 6714: 4) 179 mm. in length, is, apart from the fracture, smoothened by long wear, and the point shows a perfect and beautiful polish.

Pl. 112,2 (K. 6714: 6) is very nicely polished into a rounded point.

Pl. 112,3 (K. 6714: 5) is not only beautifully polished but at the point shaped into a narrow chisel-edge.

Boar's tusk pendant.

Pl. 112,4 (K. 3004: 7) is an object cut from the canine of a boar. It is pierced with a hole in each end. The holes are conical with the narrow opening on the convex side. It may be a reasonable conjecture that this object was worn as a pendant.

Cylindrical bone objects.

Pl. 112,7 (K. 6714: 3) is a very thin-walled bone object, 27 mm. in length and 18 mm. in diameter. The wall is only 2 mm. in thickness.

Pl. 113,5 (K. 3003: 2) is a very massive bone fragment, 55 mm. in length and 30 mm. at the largest diameter. It shows beautiful polish from long use, the nature of which it is difficult to guess.

Broad-edged bone instruments.

Pl. 112,6 (K. 6714: 2) is a massive bone instrument, 149 mm. in length, 30 mm. broad and 12 mm. in thickness. It is square-cut at the rear end. The rear side (hidden in the figure) has the natural rounding of the bone; the front side, shown in the figure, is cut flat and the fore end is thin and shows sign of wear.

Pl. 112,5 (K. 6714: 1) is a fragment of a utensil made from a huge rib bone. It still retains the shape of the rib bone except at the end, which is formed into a rounded edge.

Pl. 113,8 (K. 3003: 8) is a fragment with an oblique cutting edge.

Pl. 113,9 (K. 3003: 10) is a fragment that seems to have been reshaped by Man nearly all over. At the rear end it is very massive, not less than 13 mm. thick. From there it tapers to a thin edge.

Pl. 113,7 (K. 3003: 11) is a rectangular fragment, equally thin all over and with beautiful polish.

Pl. 113,6 (K. 3003: 9) is a veritable bone chisel, square cut at the back and with a regular edge at the fore end. Length 75 mm. Width 35 mm. Thickness 7 mm.

Pl. 113,10 (K. 3003: 7) is a fragment of a massive bone, shaped at one end into an edge.

Pl. 114,4 5, 9 and 13 (K. 3003: 15, 13, 12, 19) are fragments that remind us of Pl. 113,7. 4 and 5 are nicely polished. 9 is thicker, with a thin edge below. 13 is a small fragment of a big instrument, possibly like Pl. 112,5.

Pl. 114,3, 6, 15 and 16 (K. 3003: 44, 41, 38, 22) are fragments of flat bone instruments the ends of which are unknown. 3 is very thin, like Pl. 114,5. Pl. 114,6 is rather massive, 7 mm. in thickness.

Pl. 114,7 (K. 3004: 6). Tubular bone object.

Pointed bone instruments.

Pl. 113,1 (K. 3003: 6) is a pointed bone utensil. Length 126 mm.

Pl. 113,4 (K. 3003: 1) is a strong awl cut from a leg-bone of an artiodactyl. It resembles to some extent the specimen reproduced in «Sha Kuo T'un Cave Deposit» Pl. IX,1, but is shorter and stouter.

Pl. 113,3 (K. 3003: 4) is a broad pointed bone utensil.

Pl. 113,2 (K. 3003: 3) is a bone pointer.

Pl. 114,2 and 8 (K. 3003: 21, 18) are pointed instruments of a special type. They are flat, very thin, narrowing down to a point. One or two of our other specimens like Pl. 114,3 may have had similar broad flat points.

Pl. 114,1 (K. 3003: 25) is by far the longest of our bone implements (198 mm). It has not a real point but is square-cut at the narrow end. It is rounded, rectangular in cross-section and of rather crude make.

Pl. 114,10 and 11 (K. 3003: 28, 23) are rounded on one side and flat on the other. They are broken at both ends and we do not know whether they were pointed.

Pl. 114,12 (K. 3003: 29) may have had a broken point below. At the top there is a semicircular notch with beautiful polish from some special use.

Pl. 114,14 (K. 3003: 16) is a short tool, rectangular in outline with a short point below. The rest of the end is broken, but there may have been three further points like the remaining one.

Pl. 115,1 (K. 3003: 33) is a long (162 mm.) slender awl of most graceful shape and polish. Its colour, semitranslucent in shades from brown to grey, makes it an object of rare beauty.

- Pl. 115,2 (K. 3003: 32) is an awl much like 115,1 in shape, but opaque and rugged.
- Pl. 115,3 (K. 3003: 24) is a slightly shorter (126 mm.) awl of rather fine polish. Like 115,1 it is flattened at one end and rounded at the other.
- Pl. 115,4 (K. 3003: 35) is a slightly bent awl, 122 mm. in length. Here it is a very striking feature that one end is flattened and the other rounded.
- Pl. 115,5 (K. 3003: 34) is a rather stout awl (112 mm. long), which in graceful shape and in spotted, semi-translucent grey competes with Pl. 115,1 in beauty. The upper end is quite flattened on one side but this feature is not visible in the figure.
- Pl. 115,6 (K. 3003: 36) is a broken awl like Pl. 115,1 and with much of its beautiful surface.
- Pl. 115,7 (K. 3003: 30) is a short awl or arrow-point(?), the lower part of which is attenuated. The cross-section is everywhere circular.
- Pl. 115,8 (K. 3003: 26) is a short awl, rounded square-cut at the upper end with round point below. Fine polish. Length 74 mm.
- Pl. 115,9 (K. 3003: 40). Awl of irregularly quadratic cross-section. Pointed at both ends.
- Pl. 111,14 (K. 3003: 17). Black, pointed bone instrument.
- Pl. 115,10 (K. 3003: 45). Fragment of a pointed instrument. A stout object obtusely pointed at both ends.
- Pl. 115,11, 12, 13, 14 (K. 11188, K. 3003: 43, 42, 23) are cut, the second one in mussel shell, the three others in bone. They are all pointed both ways and are of unknown use.
- Pl. 115,15 (K. 3004: 5) is a small needle (43 mm. long) without an eye.
- Pl. 115,16—20 (K. 3004: 2, 4, 3, 1 and K. 3000: 4) are sewing needles, some of them very graceful in shape, fine in polish and colour.
- Pl. 115,21—23 (K. 3003: 39, 27, 20) are broken bone points of various shapes.
- Pl. 115,24, 25 (K. 3003: 41, K. 3000: 1) are two beautiful and remarkable bone points. 115,24, with most perfect polish, is made from the hollow bone of a bird. 115: 25 is somewhat massive, flat on the one side and rounded on the other.

Blade knives.

A. Knives with two side-notches.

- Pl. 116,1 (K. 1714). Formed out of a flake chipped from a greenstone pebble. Deep notches on each side. The rearside shows some polish from long wear.
- Pl. 116,8 (K. 1711). A larger specimen than 116,1. Side notches less deep. Formed out of a diorite pebble flake. Partly polished also on the flaked side.

Pl. 116,10 (K. 1952: 53). Knife of dark grey limestone. Side notches merely indicated. Indication of an edge on the side that is uppermost on the figure, but on the underside there are numerous chippings indicating an unfinished new edge.

Pl. 116,11 (K. 1952: 63). Green igneous dense rock. Notches shallow. On both sides a shallow unfinished boring.

Pl. 116,7 (K. 1713). Rock glauconitic sandstone. The side visible in the figure has in the centre a broad shallow boring.

B. *Knives without notches and holes.*

Pl. 116,3 (K. 1710). Rock grey slate.

Pl. 116,5 (K. 1952: 35). Rock yellowish-grey micaceous sandstone. Outline rectangular. Upper, right and left sides square cut. The bottom side has a very regular edge. L. 55, H. 36, Th. 6 mm.

C. *Sickle-shaped knives.*

This is a late and specialized derivative of the primitive Neolithic blade knife. Possibly these knives were hafted like a sickle. They are common from the early historical Anyang site. Our Pu Chao Chai specimens are both fragmentary.

Pl. 116,6 (K. 1952: 66). Proximal part of a gently curved sickle-shaped knife of grey sandstone. The knife is very broad (10 mm.) at the back (upper side) from which it narrows down to a sharp, elegantly cut edge.

Pl. 116,2 (K. 915). Proximal fragment of a very large specimen cut in dark schist. Back narrow, edge well cut.

D. *Knives with one hole.*

Pl. 117,8 (K. 3058: 1). Rock red sandstone.

Pl. 117,2 (K. 11118). Rock reddish-brown sandstone. Knife resembling in shape the preceding one but more elongated and with the hole nearer to the edge. L. 101, H. 47, Th. 7 mm.

Pl. 117,6 (K. 1952: 1). Rock dark grey sandstone. In shape like the two preceding ones but less regular. L. 90, H. 51, Th. 7 mm. Edge cut only from one side.

Pl. 117,3 (K. 1721). Irregular blade cut in dark slate. Biconical hole near the edge.

Pl. 117,1 (K. 1952: 2). Dark reddish slate. Shape irregular, one side broader than the other. May have been much longer and subsequently reshaped.

Pl. 116,9 (K. 1760). Grey slate. Broken over the hole, which is located near the back.

E. *Knives with 2 or 3 holes.*

Pl. 117,5 (K. 1952: 37). Dark slate. There are 3 holes, one of them over the broken end. This knife has two edges, one long, one turned downwards on the figure, and the other to the left next to the biggest hole.

Pl. 116,4 (K. 1952: 36). Dark slate. 2 holes. No edge on the long sides, only on the short side to the left of the figure.

Pl. 117,4 (K. 1952: 103). Dark slate. Edge only on the short side, which curves. The knife was originally longer, like 116,4 but is broken over the upper hole, which is hardly visible in the figure. Across the intact lower hole there is a sharp furrow on both sides of the blade in the longitudinal axis of the blade.

Pl. 117,7 (K. 1952: 38). Pale green steatite. Two biconical holes nearer to the back.

Big stone axes.

Of this group there are no less than 42 specimens, 15 of which have been found to be so complete and to represent so different types that they have been reproduced here (Pl. 118—119).

The central type (Type A) may be said to be a heavy, square-butted weapon of broad rectangular or nearly quadratic cross-section, such as Pl. 118,4 (K. 823). Length 156 mm., width 63 mm., thickness 46 mm. Butt nearly square, 47×43 mm. Rock grey diorite.

Pl. 119,7 (K. 1952: 113) comes near in shape to the preceding one. L. 142 mm., W. 59 mm., Th. 43 mm. Butt nearly square, slightly irregular, 50×40 mm. Rock grey diorite.

Pl. 118,5 (K. 825). L. 142, W. 55, Th. 47 mm. Diorite.

Pl. 118,7 (K. 829). This is an unusually broad specimen. L. 125, W. 65, Th. 38 mm. Fine-grained diorite?

Pl. 118,2 (K. 831). L. 118, W. 54, Th. 36. Diorite.

Pl. 118,9 (K. 826). L. 139, W. 57, Th. 42. Fine-grained diabase? with small amygdaloid cavities. Fine polish along the edge.

Pl. 118,8 (K. 1952: 107). L. 133, W. 52, Th. 41 mm. Coarse-grained diorite. An unusually beautiful axe of elegantly pointed-elliptical longitudinal outline and perfect polish on the edge.

Pl. 118,6 (K. 838), L. 142, W. 58, Th. 39. Fine-grained diorite. This axe is peculiar in so far that on the centre of one of the broad sides it has a shallow but distinct groove made by the same kind of pounding action that produced the rough surface of the main part of the axe.

Pl. 118,1 (K. 844). L. 122, W. 63, Th. 38. Diorite. This specimen has two central grooves, one on each of the broad sides.

Pl. 119,2 (K. 845). L. 119, W. 55, Th. 36 mm. Coarse-grained diorite. This is a very rare type, which has a distinctly set-off, more slender rear part, a feature that may have served to make the hafting more solid.

Pl. 119,5 (K. 846). L. 122, W. 55, Th. 41 mm. Liver-brown porphyry with white spots. This axe, with its rounded cross section and the tapering rear part, forms a transition to the next specimen.

Pl. 118,3 (K. 3002: 3). L. 137, W. 54, Th. 43 mm. Diorite. The cross-section of this axe is broad-elliptical, the rear end is tapering and rounded.

Pl. 119,1 (K. 3002: 2). L. 166, W. 58, Th. 44 mm. Fine-grained diorite. This is the first of five axes of a more elongated type. Otherwise it is like Pl. 118,4 in the rectangular cross-section and the square-cut rear end. Not only the edge but a large part of the axe is polished.

Pl. 119,6 (K. 1046). L. 171, W. 59, Th. 44 mm. Coarse diorite.

Pl. 119,3 (K. 822). L. 157, W. 48, Th. 42 mm. Diorite.

Pl. 119,4 (K. 821). L. 205, W. 63, Th. 46 mm. Diabase? with miarolitic spots. By far the longest of all the axes from this site.

Pl. 118,10 (K. 1952: 111). L. 158, W. 53, Th. 40 mm. Greyish-brown porphyry with dark green spots. Shape tapering towards the rear end, which is irregularly pointed.

Axes of various types.

Pl. 119,8 (K. 849). L. 110, W. 55, Th. 31 mm. Diorite. Largest width across the edge. Neck relatively thin.

Pl. 120,1 (K. 850). L. 102, W. 49, Th. 28 mm. Diorite. Largest width across the edge.

Pl. 120,3 (K. 851). L. 108, W. 58, Th. 29 mm. Diorite. Largest width across the edge. Cross-section elliptical.

Pl. 120,9 (K. 856). L. 119, W. 42, Th. 33 mm. Diorite. Largest width across the rear part. Width over edge 25 mm.

Pl. 120,5 (K. 858). L. 115, W. 32, Th. 30 mm. Diorite. Cross-section rounded-quadratic.

Pl. 120,10 (K. 857). L. 114, W. 32, Th. 26 mm. Diorite.

Pl. 120,2 (K. 1952: 209). L. 79, W. 25, Th. 21 mm. Diorite. Largest width across the middle part. Neck rather thin.

Pl. 120,4 (K. 855). L. 108, W. 37, Th. 26 mm. This very irregular axe was shaped simply by forming an edge at one end of a pebble, the other extremity of which is irregularly pointed.

Pl. 120,6 (K. 860). This is the front part of a diorite axe, which is unique in so far that the cross-section is strictly rectangular. The whole surface nicely polished.

Pl. 121,1 (K. 864). The frontal quarter of a diorite axe, elegantly polished and of angular outline.

Pl. 120,8 (K. 1952:121). Front fragment of a diorite axe with nearly semi-circular edge.

Pl. 121,7 (K. 865) front fragment of a small axe, the edge part of which is much broader than the rest of the axe.

Pl. 120,7 (K. 1952: 99). An unfinished, simply chipped specimen intended to be formed into a small axe or chisel. Diorite.

Thin, perforated axes.

Pl. 123,4 (K. 1952: 104). A nearly complete specimen but of inferior quality. Rock greenish-grey, fine-grained. Biconical hole very carelessly bored.

L. 117 mm. W. 64 mm. Th. 11 mm.

Pl. 121,2 (K. 881). The rear part of a diorite axe with a conical hole, 12 mm. i diam. at one side, but less than 5 mm. at its narrowest. The width of the axe is 55 mm. just behind the hole, and the thickness 18 mm. A queer feature is a deep cut in one side (left of the figure).

Boring one-sided, strongly conical.

Pl. 121,3 (K. 1952: 141). Rear part of an elegantly cut greenstone axe. Boring from one side, very regular, slightly conical. The opposite side shows some signs of hammering and boring.

Pl. 121,9 (K. 879). Rear part of another greenstone axe.

Pl. 121,4 (K. 1952: 140). Front part of an elegant axe with gently rounded sides. Rock consisting of small quartz grains embedded in a not very hard, non-calciferous matrix with black spots.

Pl. 121,8 (K. 1952: 126). Front part of an elegantly polished greenstone axe. Sides square cut.

Unique stone axes.

Pl. 121,6 (K. 3002: 1). L. 223, W. 110, Th. 20 mm. This huge weapon or tool is cut from a slab of brown limestone-like rock. The straight handle part is complete; the edged part is broken and the shape of its end is unknown. The whole of the tool except the back of the handle is smoothed by polishing.

Stone hoes.

In Yang Shao Tsun there are a number of thin stone tools which were most probably used as hoes or mattocks for digging in the loess soil. In Pu Chao Chai there were some fragments of these stone hoes, but only two fragmentary specimens are large enough to be described here.

Pl. 122,6 (K. 923). A big fragment of the rear part. W 73 mm., Th. 19 mm. Surface roughly polished. The brown stone looks like limestone but does not dissolve in hydrochloric acid.

Pl. 121,10 (K. 898). W. 83 mm., Th. 12 mm. The edge-part of a very thin hoe. Brown rock. Surface fairly well polished.

Grinding stone.

Pl. 121,5 (K. 918). A nicely rounded piece of whitish sandstone with two smooth bedding-planes, in the middle of which there is, on each side of the stone, a big depression formed by pounding and grinding. L. 114, W. 101, Th. 37 mm.

Pounder.

Pl. 122,4 (K. 897) is a stone for pounding, cut in diorite. The whole surface is rough, except for the top, which shows the irregularly smoothended surface of a pebble. The base shows distinct marks of pounding. L. 116, W. 53 mm.

Adzes.

This is a very numerous and varied group of mostly fragmentary pieces. 34 complete specimens are described here.

Pl. 122,1 (K. 852) this heavy and unpolished diorite specimen looks like one of the big greenstone axes, but a careful examination shows that it is asymmetrical and was certainly hafted as an adze. The edge is broken and the length cannot be exactly stated; 154 mm. is thus a minimum figure, W. 61 and Th. 37 mm. As the longitudinal section shows, the edge was distinctly asymmetrical.

Pl. 122,2 (K. 853). L 129, W. 44, Th. 30. Diorite. This is an unfinished piece cut from an axe. When it was being chipped into the shape of an adze half of the neck fell off and so the piece was discarded.

Pl. 122,7 (K. 1952: 152). L 104, W. 60, Th. 27 mm. Diorite. This is a heavy adze but quite different from 122,1. This specimen, and also the two following specimens, were probably made by reshaping a moderately rounded axe, which after being accidentally broken was changed into a short adze. The unpolished parts show what is left of the contour of the axe.

Pl. 122,5 (K. 1952: 154). L 98, W. 50, Th. 20 mm. Diorite. This is practically an axe cut in half lengthways and given an adze edge.

Pl. 122,3 (K. 1952: 153). L 103 mm, W. 54 mm., Th. 21 mm.
Greenstone. Like the preceding specimen, made by reshaping an axe.

Pl. 123,8 (K. 1952: 155). L 88 mm., W. 53 mm., Th. 16 mm. Greenstone.

Pl. 123,5 (K. 1952: 157). L. 63, W. 49, Th. 18 mm. Diorite. Maximum thickness at the rear.

Pl. 123,2 (K. 1952: 156). L. 74, W. 50, Th. 17 mm. Quartzite.

Pl. 123,6 (K. 1044). L. 71, W. 39, Th. 17 mm. This small adze was also probably made by grinding down a small broken axe to the shape of an adze.

Pl. 124,2 (K. 801). L. 66, W. 33, Th. 21 mm. Cut from a singularly spotted crystalline schist.

- Pl. 124,1 (K. 547). L. 64 mm., W. 27 mm., Th. 13 mm.
Jade?, spotted white to greyish green.
- Pl. 123,3 (K. 1952: 160). L. 77, W. 30, Th. 24 mm. A hard grey dense rock with oval enclosures, possibly a volcanic agglomerate.
- Pl. 124,5 (K. 1952: 158). L. 61 mm., W. 33 mm., Th. 14 mm.
Hard, dense, greenish-grey rock.
- Pl. 125,5 (K. 806). L. 44, W. 28, Th. 11 mm. Dark rock with beautiful banding.
- Pl. 124,4 (K. 1952: 172). L. 53, W. 27, Th. 11 mm. A beautifully faceted specimen cut in a brownish-grey to yellow porphyric rock.
- Pl. 125,3 (K. 1952: 171). L. 47, W. 19, Th. 10 mm.
- Pl. 125,1 (K. 1952: 170). L. 61 mm., W. 17 mm., Th. 13 mm.
Dark green, dense rock. Square-cut on every side.
- Pl. 125,2 (K. 1952: 169). L. 69 mm., W. 18 mm., Th. 18 mm.
Dense hard greyish-brown rock.
- Pl. 123,7 (K. 1952: 101). L. 84 mm., W. 31 mm., Th. 16 mm. Diorite.
- Pl. 125,4 (K. 1952: 176). L. 43, W. 17, Th. 9 mm. A glistening black crystalline rock.
- Pl. 126,7 (K. 1952: 191). L. 32, W. 16, Th. 7 mm. Dark grey slate.
- Pl. 126,4 (K. 1952: 106). L. 39, W. 25, Th. 10 mm. Neck rounded and the whole specimen elegantly smooth. Cut from a hard siliceous whitish-grey rock with beautiful vein structure.
- Pl. 126,1 (K. 575). L. 45 mm., W. 23 mm., Th. 9 mm.
Pale green, slightly spotted jade.
- Pl. 126,3 (K. 1952: 162). L. 39, W. 30, Th. 10 mm. Hard dense greenish-grey rock.
- Pl. 126,2 (K. 1952: 167). L. 37, W. 29, Th. 8 mm. Hard greenish-black rock.
- Pl. 126,9 (K. 859). L. 35, W. 24, Th. 10 mm. Rock hard, siliceous, a beautiful black where polished.
- Pl. 126,6 (K. 1952: 168). L. 34, W. 21, Th. 7 mm. Dark schistose rock.
- Pl. 126,8 (K. 1772). L. 26, W. 24, Th. 8 mm. Fairly hard, dense, grey rock.
- Pl. 124,3 (K. 804). L. 49, W. 31, Th. 9 mm. Hard, schistose dark-grey, spotted rock.
- Pl. 123,1 (K. 1952: 97). L. 115, W. 53, Th. 13 mm. Greenish-yellow sandstone. An unusually slender type of adze.
- Pl. 126,5 (K. 1952: 163). L. 48, W. 24, Th. 12 mm. Diorite, sharply straight-cut.

THE SITES IN HO YIN HSIEN, HONAN

After our survey of the Yang Shao Tsun Site was completed on the 1st December 1921, I returned to Peking, but my collector Yao remained in Honan. While there, he located in Ho Yin Hsien, further east on the South side of the Yellow River, three sites, Chin Wang Chai, Niu K'ou Yü and Chih Kou Chai, which are evidently of the same type as Yang Shao Tsun, though possibly slightly more recent, and which yielded a very rich and splendid harvest, specially of painted pottery. These sites were later visited by my collector Pai Wan Yü. Unfortunately I never had an opportunity of surveying these important sites, but Pai at my request prepared from memory a sketch, which is reproduced here (Fig. 18). This sketch-map has to be accepted with all reserve, as the distances do not tally exactly with the statements of some labels. In addition, there is on some labels a name Wang Chia Kou, which does not occur on the map. Just NE of Chin Wang Chai there is marked on the sketch-map an unnamed site; possibly this is Wang Chia Kou. Actually very little is known about these sites, beyond the fact that they occur just south

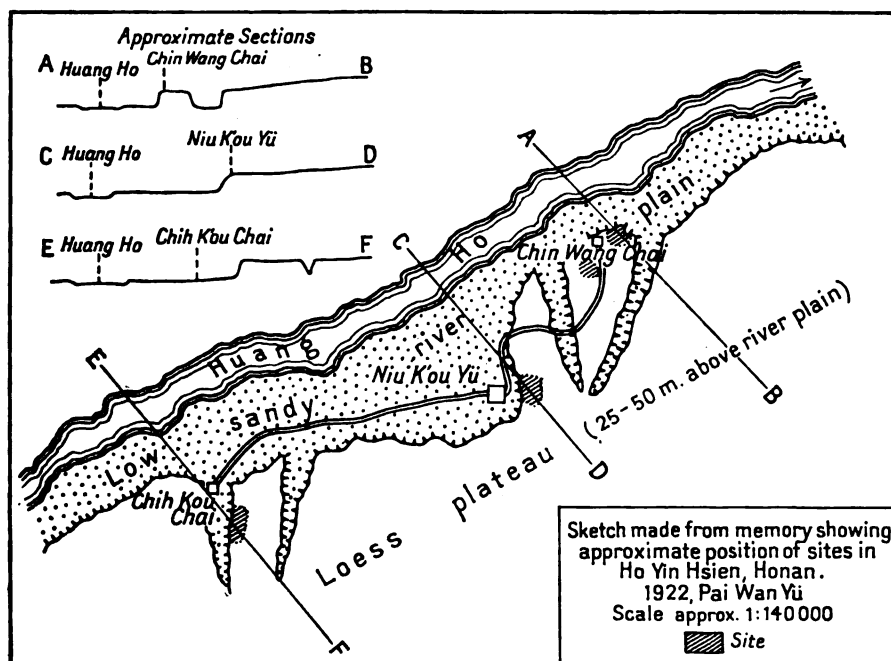


Fig. 18.

of the Huang Ho and that they are located on the edge of the loess plateau which is lobated by deep ravines.

The abundance of fish bones and freshwater shells indicates the proximity to the Yellow River.

* * *

Many of the best specimens from these sites were described in our earlier publications. In my first paper »An Early Chinese Culture», Geol. Survey of China, Bull. 5, 1923, the following specimens were described:

- Pl. XIII,3. Chih Kou Chai.
- Pl. XIII,5. Chih Kou Chai.
- Pl. XIII,6. Chih Kou Chai.
- Pl. XIII,8. Chin Wang Chai.
- Pl. XIV,1. Chih Kou Chai.
- Pl. XIV,2. Chin Wang Chai.
- Pl. XIV,3. Chin Wang Chai.
- Pl. XIV,5. Chin Wang Chai.
- Pl. XIV,6. Chin Wang Chai.

In Arne's »Painted Stone Age Pottery» Pal. Sin. Ser. D. Vol. I, Fasc. 2, 1925:

- Pl. VI,15. Painted sherd. Chin Wang Chai.
- Pl. VII,18—20, 22—23. Chin Wang Chai.
- Pl. VIII,26—28. Painted sherds. Chin Wang Chai.
- Pl. IX,30, 32, 34—35. Painted sherds. Chin Wang Chai.
- Pl. IX,33. Painted sherd. Chih Kou Chai.
- Pl. X,36—39, 41. Painted sherds. Chin Wang Chai.
- Pl. XI,46—51. Painted sherds. Chin Wang Chai.
- Pl. XII,55, 58—62. Painted sherd. Chin Wang Chai.
- Pl. XII,57. Painted sherd. Chih Kou Chai.
- Pl. XIII,63—65, 67—68. Painted sherds. Chin Wang Chai.

In my more recent volume »Researches into the Prehistory of the Chinese» (BMFEA No. 15, 1943) the following Ho Yin specimens are described:

- Pl. 10,2. Pen.
- Pl. 18,3 Broad perforated axe.
- Pl. 23, 1, 3, 4. Stone hoes.
- Pl. 24, 2, 4, 6. Stone hoes.
- Pl. 35, 1. Eggshell vessel.
- Pl. 164, 12. Stone knife.
- Pl. 165, 4, 5. Stone knives.
- Pl. 166,2. Large vessel with pointed bottom.

DESCRIPTION OF THE FINDS

Rounded stone axe.

Pl. 127,1 (K. 2062: 85). To judge from the present state of the specimen it was possibly obtained by purchase. Surface much obscured by modern dirt. Rock probably dark greyish brown.

L. 97 mm. W. 64 mm. Th. 25 mm.

In shape this axe comes near to the three small broad axes from the Sha Kuo T'un cave (Sha Kuo T'un monograph Pl. VI, 9—11). Similar axes occur at Yang Shao Tsun (Y. S. T. monograph Pl. 57). For reasons given above it is not at all certain that this specimen was found with the painted pottery and other objects described below.

Broad perforated axes.

Pl. 127,3 (K. 3213). Chih Kou Chai.

Thin axe of pale-grey soft rock. Slightly assymetrical, with one broad side flat and the other slightly convex. Large central hole, conically bored from one side and shallow hammering on the other side. L. 120 mm. W. 83 mm. Th. 9 mm.

Pl. 127,4 (K. 3214). Chih Kou Chai.

Rock laminated, greyish-white marble. Large central hole with conical boring from both sides.

Pl. 127,6 (6776: 49). Chih Kou Chai.

Rear part of flat, perforated axe of grey limestone. Large central hole biconically bored. Thickness 16 mm.

From Chih Kou Chai came also the specimen in «Prehistory» Pl. 18,3. This is another type with boldly rounded forepart and a hole near the back.

Pen.

Pl. 127,2 (K. 6776: 48). Chih Kou Chai.

Elongated, slightly curved pen of dark-grey rock.

L. 79 mm. W. 31 mm. Th. 16 mm.

Pl. 127,5 (K. 2062: 86). Chin Wang Chai.

Dark, spotted, probably volcanic rock.

L. 65 mm. W. 33 mm. Th. 13 mm.

Pl. 127,7 (K. 6776: 47). Chih Kou Chai.

Dark, schistose crystalline rock.

59 mm. 36 mm. 13 mm.

Limestone hoes.

Pl. 127,8 (K. 2438). Wang Chia Kou and

Pl. 127,9 (6777: 58). Chin Wang Chai are two fragments which, to judge from their size, belong to the hoe group. The former consists of black rock, not effervescent on immersion in hydrochloric acid, the latter of pale-grey limestone. The edge of this specimen is slightly asymmetrical (compare the specimens of Pl. 23 in «Prehistory»).

Arrow points.

Pl. 128,2 (K. 11170). Chih Kou Chai. Slate arrow-point, regularly triangular in cross-section.

Pl. 128,5 (K. 11165). Chih Kou Chai. Flat slate arrow-point.

Pl. 128,6 (K. 11153). Chih Kou Chai. Thin slate arrow-point or small lance head.

Pl. 128,1 (K. 6733: 1). Chih Kou Chai. Bone arrow-point, broken at the head. Cross-section irregularly rounded.

Pl. 128,4 (K. 6774: 32). Chih Kou Chai. Fragmentary bone arrow-point, triangular at the base, rounded at the top.

Further, there is a bone arrow-point, 6776: 46, Chih Kou Chai, 44 mm. in length before the tang. This part is cylindrical with a rounded point.

Pl. 128,3 (K. 11202). Chih Kou Chai. Mussel-shell arrow-point with bright mother-of-pearl lustre. Cross section regularly triangular.

Pl. 128,7 (K. 6776: 45). Chih Kou Chai. Broad mussel-shell arrow-point hollow at the rear.

There is still another arrow-point of mussel shell, K. 6733: 2, Chih Kou Chai. Dull and rather irregular.

Stone balls.

Pl. 128,9 (K. 6776: 44). Chih Kou Chai. Half of a stone ball of dark, soft, crystalline rock.

Pl. 128,12 (K. 6776: 43). Chih Kou Chai. Big ball of whitish, clastic rock (sandstone?). One side flattened and with a hole 20 mm. deep and 13 mm. in diam.

Pl. 128,8, (K. 2062: 84). Chin Wang Chai. Ball of a soft, brownish-grey substance, not effervescent on immersion in hydrochloric acid (clay??).

Steatite bead.

Pl. 128,10 (K. 6773: 3). Wang Chia Kou. Bead of grey steatite. Boring slightly biconical.

Spinning whorls.

Pl. 128,11 (K. 11230: 3). Chin Wang Chai. Spinning whorl of fine-grained grey rock. Boring cylindrical.

Pl. 128,13 (K. 2062: 87). Chin Wang Chai. Spinning whorl of red burnt clay. Boring cylindrical.

Stone and mussel-shell knives.

Pl. 129,12 (K. 11117). Chih Kou Chai. Rock dark dense limestone. Knife of the primitive type with notches at the sides. Well-preserved edge.

Pl. 129,10 (K. 11105). Chih Kou Chai. Triangular knife of brown slate. Well-preserved edge.

Pl. 129,8 (K. 2437). Chih Kou Chai. Thin rectangular knife of brownish slate.

Pl. 129,13 (K. 3227). Chih Kou Chai. Half of a long knife of dark-grey calcareous rock. Thickness near back 8 mm. Edge unilateral, well sharpened. Two big holes with cylindric boring.

Pl. 129,11 (K. 6776: 50). Chih Kou Chai. Half of an object in outline like a knife but showing no edge. Material grey pottery. Two borings close together. Boring biconical.

Pl. 129,5 (K. 11128). Chih Kou Chai. Slightly fragmentary, pointedly elliptical mussel-shell ring. Edge apparently consists of the natural sharpened edge of the shell. Near the back and close together two small holes, biconically bored.

Pl. 129,6 (K. 6774: 1). Chih Kou Chai. Mussel-shell knife, very like Pl. 129,5, but with three holes near the back. Boring conical, onesided from the interior of shell.

Pl. 129,4 (K. 3228). Chih Kou Chai and

Pl. 129,3 (K. 3220). Chih Kou Chai are both shell knives, the former with 3 and the latter with 2 holes.

Pl. 129,1 (K. 3229). Chih Kou Chai. Is a shell knife like the preceding ones but seems to have had a more rectangular outline.

Pl. 129,2 (K. 6774: 2). Chih Kou Chai. Half of a small specimen, perforated at one end.

Pl. 129,9 (K. 6774: 3). Chih Kou Chai. A small mother-of-pearl object, rectangular in shape and of unknown use.

Bone instruments.

Pl. 130,1 (K. 6776: 60). Chih Kou Chai. Bone awl, straw-coloured, 151 mm. in length, complete and with an excellent polish.

Pl. 130,2 (K. 6776: 63). Chih Kou Chai. Small bone awl.

Pl. 130,3 (K. 6776: 59). Chih Kou Chai. Bone instrument with broad point.

Pl. 130,10 (K. 6776: 61). Chih Kou Chai. Bone instrument, rounded in the upper(?) end, broken at the other end, which however shows much wear, as if the instrument had been much used in its present state.

Pl. 130,6 (K. 6776: 62). Chih Kou Chai. Lower half of sharply pointed bone awl.

Pl. 130,8 (K. 6774: 28). Chih Kou Chai. Lower half of broad, thin, pointed bone instrument.

Pl. 130,9 (6774: 18). Chih Kou Chai. Lowest part of massive bone instrument, possibly like Sha Kuo T'un Pl. IX,1.

Pl. 130,7 (K. 6776: 54—55). Chih Kou Chai. Long flattened ash-grey bone instrument, broken at both ends.

Pl. 130,4 (K. 6776: 57). Chih Kou Chai. Thin bone object, probably cut from a rib bone. Square-cut at both ends.

Pl. 130,5 (K. 6774: 8). Chih Kou Chai. Very thin bone object, broken at one end.

Pl. 130,12 (K. 6776: 52). Chih Kou Chai. Very thin bone(?) chisel, broken at upper end.

Pl. 130,13 (K. 6774: 24). Chih Kou Chai. Massive bone chisel, broken at upper end, slightly fractured also at the end.

Pl. 130,11 (K. 6776: 58). Trochlea of cannon bone, transversely cut off.

Pl. 130,14 (K. 6776: 56). Chih Kou Chai. Bone bead.

Rings of clay, stone and mussel shell.

Rings of this kind are very abundant in these sites (Pl. 131—132). A small number are cut in stone: Pl. 131,3 (K. 2062: 94) and Pl. 131,13 (K. 2062: 95), both from Chin Wang Chai, are cut in a red, fine-grained clastic rock which I have noticed also in other Honan sites.

Pl. 132,4 (K. 6776: 73). Chih Kou Chai, consists of a grey marble(?) and Pl. 132,7 (K. 6776: 72), Chih Kou Chai, is a dark crystalline rock.

All the other rings in Pl. 131 and 132 are of clay. Among these are four: Pl. 131,1—2, 4—5 (K. 2062,96, 97, 90, 98) all from Chin Wang Chai, which are of special interest. They are shaped from cream-white clay, which should be compared with the white ware from Wu Lan Kou in Shensi and with the famous white ware of Anyang.

All the other clay specimens are grey, ranging in shades from nearly black (Pl. 132,10) to pale-grey in numerous specimens.

The shapes are well represented by the cross sections. Pl. 131,10 (K. 2062: 100), Chin Wang Chai has the peculiar humpback contour which we know from some Yang Shao Tsun specimens.

A fragment of what was possibly a ring is shown in half-natural size in Pl. 129,7 (K. 6774: 27). It is a specimen shaped from a mussel shell.

Monochrome pottery.

Pl. 133,8 (K. 2062: 113). Chin Wang Chai. A fragment which may with some probability be assigned to a Li-tripod (compare «Prehistory» Pl. 107,3—4).

Ware coarse grey, wall 4 mm. thick. A mat-impression on body and lug. Collar smooth, unusually high.

Pl. 134,4 (K. 6159). Chin Wang Chai. Ting tripod. Ware reddish brown. Vessel hand-made, surface rough without any pattern.

Height 195 mm. Diam. 226 mm. Diam. of mouth 192 mm.

Pl. 137,4—5 (K. 2201: 3—4). Ting tripod legs of reddish ware with grey surface. The unique feature is that there is a wide hole at the very base of the leg. Both specimens most likely from one tripod. Loc. Niu K'ou Yü.

Pl. 134,3 (K. 6100). Chin Wang Chai. A Li-Ting or Kia, mentioned by me in «Prehistory» Page 259, fig. 106 a.

Ware very coarse. Vessel hand-made. The flaring collar very high. Side-wall nearly cylindrical, decorated with 7 concentric lines. The flaring rim nearly as high as the side-wall. Bottom bulging. The sharp bend between side-wall and bottom decorated with a row of incisions.

Low tripod legs with a vertical row of impressions.

Height 168 mm. Diam. 209 mm.

Two fragments (K. 2201: 1—2), Pl. 135,3—4, Niu K'ou Yü, are closely related to the tripod Pl. 134,3 or possibly to the urn Pl. 134,5.

Pl. 135,4 certainly belonged to a Kia tripod, closely resembling Pl. 134,3 but without striations on the side-wall. The attachment of one of the tripod legs is still visible.

There is also a faint indication of a leg attachment in Pl. 135,3, but this is not beyond doubt.

Pl. 134,5 (K. 6125) Chin Wang Chai. There is a general similarity between this urn and the tripod just described (Pl. 134,3). The flaring collar is here very low. The bulging bottom of the tripod is here expanded into a lower half of the vessel in the shape of a truncated cone. But the striated upper half of the side-wall is the same in both vessels (only that here the lines are 10 in number). The crenelated line over the sharp bend is the same in both vessels. The vessel is hand-made and the surface is very rough, with the exception of the surface with the concentric lines. Here the surface seems to be smoothed with a dark slip.

Height 231 mm. Diam. 269 mm. Diam. of mouth 233 mm.

Pl. 134,1 (K. 5900: 14). Chin Wang Chai. Reproduced in «An Early Chinese Culture», Pl. XVI,5.

In general outline this smaller vessel is like the preceding one. The crenelated zone at the sharp bend is still there, but the concentric striations are gone. However, this upper zone of the side-wall is smoothed by a dark slip.

Vessel irregularly hand-made. Height 182 mm. Diam. 225 mm. Diam. of mouth 173 mm.

Pl. 136,1 (K. 5900: 10). Chin Wang Chai. A small and very modest vessel of the same type as the two preceding ones. The crenelated band is still there; for the rest, the vessel is rough and simple.

Pl. 138,1 (K. 5900: 9). Chin Wang Chai. This urn is slightly reminiscent of the shape of Pl. 136,5. Not only is the outline the same, the low collar is common to both, and there is in Pl. 138,1 a clumsy imitation of the elegant crenelated band of Pl. 136,5.

Pl. 138,1 is coarsely hand-made with vertical mat impression covering the side-wall. Height 270 mm. Diam. 255 mm. Diam. of mouth 215 mm.

Pl. 134,2 (K. 6776). Chih Kou Chai. Fragments of an urn in shape not unlike Pl. 138,1, but with no equatorial clay band.

Ware chocolate brown, surface dull black, a typical specimen of «black pottery».

The outside is covered with a deep distinct mat impression. Inside there are signs of rotary action on the collar and also near the bottom.

Pl. 134,6 (K. 2062). Chin Wang Chai. A large and coarse vessel of the same type as the preceding specimen. Ware chocolate brown and containing big mineral grains. Wall 5—7 mm. thick. The outside is covered with a mat impression.

Pl. 133,6 (K. 2062: 107). Chin Wang Chai. The basal part of a very large vessel. Ware chocolate brown. Wall 8—10 mm. thick. Coarse hand-made vessel with three superimposed dentated clay-bands.

Pl. 135,1 (K. 6773). Wang Chia Kou. Marginal part of a bowl with margin bent inward. Ware grey. Wall 3—5 mm. thick. Vessel hand-made.

Pl. 135,2 (K. 6773: 2). Wang Chia Kou. Bowl of the same family as the preceding piece. Ware grey. Wall 2—5 mm. thick. Collar higher and more erect.

Pl. 133,2 (K. 6155). Chih Kou Chai. A high bowl, very rugged and irregular. Ware coarse, dark grey. Wall 5—7 mm. The set-off bottom deeply dentated. Obscure mat impression on the outside of the side-wall.

Pl. 133,4 (K. 2062: 114). Chin Wang Chai. Fragment of a coarse, high bowl. Ware grey. Wall 8—9 mm. thick.

Pl. 135,5 (K. 6776: 19). Chih Kou Chai. Small bowl of a type very common at Yang Shao Tsun and Pu Chao Chai. Ware chocolate brown to dark grey. Foot set-off and deeply dentated. Margin slightly thickened on the inside. The outside very roughly made, but the inside shows traces of rotary action.

Pl. 135,8, view from above (K. 2001: 5). Niu K'ou Yü. Small bowl with broad bottom and nearly vertical side-wall. Ware brick-red. Wall 5 mm.

Pl. 137,3 (K. 6776: 20). Chih Kou Chai. Base of a bowl.

Pl. 136,4 (K. 5900: 8). Chin Wang Chai. High bowl with the edge of the bottom crenelated. Ware brick-red. Irregularly made, but with signs of rotary action.

Pl. 136,5 (K. 6315). Chin Wang Chai. Very heavy vessel with thickened margin. Ware brick-red. The vessel is built-up of clay rings piled one upon the other. Height 85 mm. Diam. 155 mm.

Pl. 136,3 (K. 6316). Chin Wang Chai. Basal part of a vessel that may have been a high bowl like Pl. 136,4 but it may also have been an urn.

In the kind of brick-red ware and also in the fine string impression on the side-wall this vessel coincides very closely with the huge vessels with pointed bottom (*«Prehistory»* Pl. 166,2) of which such splendid specimens were found at Chin Wang Chai. This specimen is an important find, showing that not all sherds of this kind belong to vessels with pointed bottom.

At the uppermost point to the left in the figure there is a thickening of the wall that may possibly indicate the attachment of a lug, which would probably mean that the vessel was an urn.

Thickness of wall 3 mm. The vessel is built-up by hand, the potter moulding clay rings one upon the other.

Pl. 136,2 (K. 6314). Chin Wang Chai. A very heavy small vessel of unique shape. Near the margin are two holes (one broken) bored conically from the outside.

Pl. 135,7 (K. 6774: 4). Chih Kou Chai. A small slender clay disk with a circular fracture on the side hidden in the figure. It may possibly be the base of a small tumbler like that in »Early Chinese Culture» Pl. VII, 4. In that case it was a miniature eggshell piece.

Ware grey. Marks of rotary action both inside and outside.

Pl. 135,6 (K. 6776: 41). Chih Kou Chai. Small fragment of a vessel with a basket impression, the only one known from the Ho Yin sites.

Pl. 137,2 (K. 6776: 42). Chih Kou Chai. Tiny sherd from a bowl of the »black pottery» group. Ware dull chocolate brown. Outside shiny black. Both sides show rotary marks.

Pl. 137,6—7 (K. 2201: 8—7). Niu K'ou Yü. Two marginal sherds of a high bowl with an interesting design on the outside. Ware brick-red. Wall 4 mm thick. The outside design consists of a zigzag pattern by rows of impressed dots.

A similar pattern was mentioned by me in the description of Sha Kuo T'un. In that monograph Pl. XI, 1 and 3 are shown sherds similar to those just described. Still more closely related to ours are the sherds reproduced in figs. 8 a and b of the same plate. Here there are real zigzag lines, as in our case. Nevertheless there is one difference: in the Sha Kuo T'un case a zigzag pattern is produced by incised lines, here by rows of impressed small dots. However, this pattern indicates a very remarkable connection between the Sha Kuo T'un and the Ho Yin ceramics.

Pl. 133,9 a—b (K. 2062: 108). Chin Wang Chai.

A unique vessel with flat base, nearly vertical side-wall and a sharply set-off flaring collar, 25 mm. broad. Ware grey, wall 4—5 mm. thick. Between bottom and side-wall a sharp bend, accentuated by a zone of dentations. The outside, the collar and the inside polished smooth. Collar with a sharp bend between inner and outer part.

This vessel rested upon narrow, elongated feet (Pl. 133,9 a), probably four in number.

Pl. 133,5 (K. 2062: 110). Chin Wang Chai. Fragment of the base of a highfooted piece (compare Pl. 28 of the Yang Shao Tsun monograph). Three big holes in a horizontal row round the vessel. Ware grey. Wall 4 mm. thick.

Pl. 133,7 (K. 2062: 111). Chin Wang Chai. Base of another high-footed piece. No holes.

Pl. 133,1 a—b (K. 6317). Wang Chia Kou. This interesting specimen lacks the central part of the bottom, and it is therefore impossible to verify my guess that it is the basin of a high-footed piece like Pl. 28,1 of the Yang Shao Tsun monograph.

Ware brownish-grey with a central zone of pure grey. Wall 4—7 mm. thick. The vessel consists of a deep central part and a sharply set-off marginal belt. It seems to be hand-made, with some signs of rotary action on the outside of the marginal zone. Surface smooth, without polish.

Pl. 133,3 (K. 2062: 112,115). Chin Wang Chai. This is with certainty the upper, basin-shaped part of a high-footed vessel. The nethermost part serving to connect with the supporting base has been subsequently ground level, apparently for the purpose of making

the basin useful after the basal part had been broken off. Ware like that of the preceding specimen: lateral parts pale-brown, centre grey. Wall 4—7 mm. thick. The outside decorated with a superposed, dentated clay band.

Painted pottery.

Before we proceed to describe the painted ceramics, brief mention should be made of a big bowl, one of our most exquisite specimens (K. 5900: 2), which is not painted but decorated in fading colours produced by the oxidizing burning of a marginal zone of the vessel.

Shapes of vessels.

In most cases the painted ceramics occur only in broken sherds, so that it is difficult, not to say impossible, to decide the shape of the vessel when entire. Nevertheless, we possess a number of vessels which permitted of a reliable reconstruction, and from them comparisons can be made with many fragmentary specimens.

Urns with wide mouth.

Pl. 138,5 (K. 5900: 15). Chin Wang Chai. This important vessel was reconstructed in Peking in a drawing, »Early Chinese Culture» Pl. XIV,2. Later on it was reconstructed as a specimen (our present Pl. 138,5) and proved to be slightly stouter and shorter. Height 334 mm. Diam. 342 mm. Diam. of mouth 290 mm.

Pl. 138,4 (K. 5899). Chih Kou Chai. This specimen also was reconstructed in a drawing, Early Chinese Culture Pl. XIV,1 and now it has been restored as a specimen (our Pl. 138,4). Here the lowest part is a mere conjecture, but I believe that the restoration is not far from being correct.

K. 5897. Chin Wang Chai. A complete vessel; a high bowl with slightly contracted mouth (Arne Pl. I). This vessel is useful in enabling us to gauge the shape of many marginal sherds. In common with urns like Pl. 138,4—5 this vessel has the carelessly drawn criss-cross trellis-band close beneath the collar. For this reason we can hardly say more about marginal sherds with a narrow flaring collar and this trellis-band beneath it than that they belonged to urns with a wide mouth (Pl. 138,4—5) or to high basins with a slightly contracted mouth (Arne Pl. I). It is true that there is a difference between the urns that are painted in black and the bowl, Arne Pl. I, which is painted in red, but there is no proof that this constitutes a distinction between urns and bowls. From these considerations I judge it safe to state merely that Pl. 140,8. 142,1—2. 143,1—5 and 147,1, belong to one or other of the above-mentioned groups. There is certainly a further indication: the curvature of the uppermost part of the side-wall of the urns in Pl. 138,3—5 is very slight, nearly straight, while that of the urn Arne I is rather bold. Judging from these observations I would guess that Pl. 143,3—4 and 149,1 and 4 were bowls, but this is only a conjecture.

Another type of vessel is the bowl with strongly contracted mouth reproduced in our Pl. 138,2 (K. 5920) Chin Wang Chai. In this case also the two lowest centimeters are only based on conjecture, though it certainly comes near to the truth. Similar specimens, often provided with a thickened margin, are, among others, 139,2, 8, 141,13, 142,3, 144,1, 11, 147,10.

A third group comprises bowls with wide mouths and generally thin ware, such as for instance Arne Pl. II and our Pl. 146,8. 148,3—5, 7 and 149,3.

There are undoubtedly other shapes of vessels which I could not trace from our sherd material. For instance, I am not able to reconstruct the shape of the interesting specimen Pl. 146,1.

Pigments and designs.

These ceramics, varied as they are in ware and pigment, should have been reproduced in colour plates, but for reasons of economy that could not be done. Here below I shall give a brief review of wares, colours and provenance:

- C. W. C. = upon specimens means Chin Wang Chai.
- C. K. C. = Chih Kou Chai
- W. C. K. = Wang Chia Kou.
- N. K. Y. = Niu K'ou Yü.

The four painted vessels in Pl. 138,2—5 have been described in earlier papers by me and Arne.

Pl. 139. All specimens from Chin Wang Chai. These sherds all have this in common that there is a thick white slip covering the brick-red ware. In some specimens there are parts where no white slip has been applied. This is the case with fig. 14, in which the lowest part is left bare. In many, perhaps all of the specimens, the collar was also left free of slip. This is very apparent in fig. 1—3, and 7. In other specimens the bare collar band is so narrow that it is only just recognizable in the plate.

The prevailing pigment is black, in some instances pure black, in others with a tinge of brown. Fig. 6 is painted in brownish red, which also covers the marginal band where it is painted directly upon the brick-red ware. In fig. 10 the trellis-pattern is painted in two colours. Most of it is brownish-red but three strokes running to the right are greyish-brown. There are also greyish-brown strokes in fig. 6.

Fig. 13 is a singular case. The pigment is dark-reddish and of very coarse texture. In fig. 3 there is a broad red circular dot and several red strokes intermingled with the black strokes.

Pl. 140. All sherds from Chin Wang Chai.

Here too there is a thick white slip underneath the paint. Fig. 3, 5, 9 and 10 show a glimpse of the lowest part, to which the slip was not extended.

All the specimens 1—8 show distinctly the collar band, where the brick-red ware is exposed without slip or paint.

Black is the prevailing pigment. Fig. 1 has a spear-like red stroke between the two horizontal black ones. Fig. 4 has a small red dot low down inside the eye, Fig. 8 and 9 have much obliterated red strips between the black horizontal ones.

Pl. 141. Fig. 1—6, 8 and 11 are from Chin Wang Chai, 7,9—10 and 12—13 came from Chih Kou Chai. All these sherds have the thick white slip. Two of them, 10 and 12, reach so far down that they show a portion of the lowest part to which the white slip was not applied. 7, 9, 12 and 13 show the bare collar band. In addition to the predominating black paint there is some red: Fig. 1, the largest circle is red. 2, there is a red splash over the junction of the black lines. 5, there is red outside the collar and also a small splash over the white and black at the left-hand corner. 6 has a round red dot over the junction of the black lines. 8, the round dot over two black lines is red. 12 has an irregular red splash over the narrow black line. Here there is also red over the collar. It should also be noted that two black lines extend very freely over the basal part, where there is no slip.

Pl. 142. Fig. 1 is red paint on grey ware. Fig. 2 red on brick-red ware. Fig. 3 is an entirely unpainted piece.

Pl. 143, Fig. 1, pale brick-red ware with red paint. Fig. 2, grey ware with pale reddish surface, painting in reddish brown. Fig. 3, wall unusually thick, 7 mm., inside grey, outside brick-red. Painting in black. Fig. 4, ware brick-red, painting black. Fig. 5, ware inside grey, outside red, painted in black.

Pl. 144. Fig. 1, inside grey, outside pale-brown. Pigment black. Fig. 2, ware grey; outside pale-yellowish brown. Reddish-brown border at the mouth. Fig. 3, thin-walled, 3—4 mm. Ware grey to brick-red. Margin painted in brownish-red. Fig. 4 unpainted. Fig. 5, ware grey, outside brick-red, black paint. Fig. 6, ware grey, outside brick-red. It is difficult in this and many other sherds to decide whether the brick-red outside is due to superficial oxidizing burning or to the application of a very thin slip. Painting black. Fig. 7, outside pale brick-red. Painting black. Fig. 8, thick-walled vessel, 8 mm. Grey in centre. Surfaces brick-red. Black paint. Fig. 9, thin-walled, 4—6 mm. Outside pale brick-red. Margin in red; trellis in black. Fig. 10, outside brick-red. Margin red. Fig. 11, outside brick-red. Black paint. Fig. 12, very slender bowl (wall 2,5 mm.) Surface grey. Red paint. Fig. 13, surface pale brick-red. Paint reddish brown.

Pl. 145. All from Chin Wang Chai.

Fig. 1, ware grey. Surfaces brick-red. Painting black. Fig. 2 and 4, sherds cut round for some special purpose but unfinished. Ware and the inside grey. The outside brick-red. Painting black. Fig. 3, ware grey. Surface red. Painting black. Fig. 5, thin walled 3—4 mm. Ware and surfaces grey. Painting red. Fig. 6—8, ware and inside grey. The outside brick-red. Painting black.

Pl. 146. Two different groups are brought together in this plate. Fig. 1—9, all from Chin Wang Chai, are thin-walled sherds of grey ware with red painting.

Fig. 10—16 came from Niu K'ou Yü. Fig. 13 is a thin sherd with grey ware and red painting. All the rest belong to the type of vessels with thick wall and white slip, except below and round the mouth. Painting done in black with the addition of straight red stripes between the black ones in figs. 14—15. Fig. 15 has also a big round splash just below the margin.

Pl. 147. All came from Chin Wang Chai. Four sherds figs. 2, 6, 9 and 12 belong to the type with a thick white slip. Fig. 12 is painted only in black. The three others are painted in alternating black and red lines, though the painting is much effaced.

Fig. 10 is a very interesting specimen, though difficult of interpretation. Very likely it belongs to the group of thick-walled vessels (well represented in our Pl. 138,2) which are covered with a white slip except on the basal part and on a band round the mouth. The shape of these vessels as described above, is a bowl with contracted mouth.

The present surface of this specimen is obscured in a way that induces me to hazard a guess that it was obtained from a farmhouse and had been soiled by fat and dust. However, I have not dared to clean it as in its present state it possesses a kind of beauty with which I do not like to interfere. The white (shown white in the figure) is entirely unlike the chalk-like (though not calcareous) white slip of all other specimens. The white of this specimen has a glossy lustre and a likeness to mother-of-pearl. There is also another strange feature, unknown in other cases, namely, two kinds of black; one cross-lined in the figure and corresponding to the black of other specimens; the other jet black, of high lustre, forming narrow stripes and small rhombi within the fields of ordinary black.

In the centre there is a horizontal red figure, marked with oblique lines.

Figs. 1 and 4 are thin-walled sherds with grey ware and red painting. Figs. 3 and 8 are possibly from one and the same vessel. Ware reddish grey, covered on the outside with a warm red slip, on which the painting is executed in black. Figs 5, 7 and 11, ware grey, both the inside and the outside brick-red. Painting done in black.

Pl. 148. All specimens from Chin Wang Chai, except figs. 3 and 9, which came from Chih Kou Chai, and fig. 4, which came from Niu K'ou Yü.

Figs. 1, 2 and 6 have in common the medium-thick wall (5—7 mm), the grey ware with pale brick-red inside and outside surfaces and painting done in pale red.

Figs. 8 and 9 are thinner-walled (4 mm.), ware and surfaces brick-red with brighter red paint. Figs. 3—5 and 7 are thin-walled vessels (3 mm.), grey ware and surfaces, and reddish-brown paint. They were all slender bowls with a wide simple mouth.

Pl. 149. All from Chin Wang Chai, except figs. 11 and 18, which came from Chih Kou Chai.

Fig. 1, grey ware and red paint on a yellowish-grey outside. Figs. 2—3, 10—12, and 15 belong to the group of thin-walled bowls with grey ware and wide, simple mouth. Painting done in red. Figs. 5—7, 9, 13—14 and 17—19 belong to the thicker-walled type with red paint on a brick-red outside. Fig. 8 has a broad zone of yellowish red, possibly produced by oxidizing burning (compare the complete sp. K 5900: 2 described above) and in addition a painted narrow red marginal band. Fig. 16 shows a trellis rhomb painted in red on a yellowish-white slip.

CORRELATION OF THE HONAN SITES

In the following brief review of the Honan sites I have not taken into consideration the important discoveries of Yang Shao age made near Anyang by Chinese scientists. No detailed reports on these finds were published at the outbreak of the second World War, and I judge it safe to postpone drawing any comparisons until the material from the Anyang area is fully known.

In »Prehistory» p. 62—77 a comparison was made with the »black pottery» or Lung Shan culture of Shantung as we know it from the Cheng-tzu-yai monograph.

Here I shall compare those Honan sites which were studied personally by me (Pu Chao Chai, Yang Shao Tsun and Ho Yin) with each other. And then these sites will be compared with those of Kansu.

In the geographical setting there seems to be a difference between the Kansu and the Mien Chih (Pu Chao Chai and Yang Shao Tsun) sites. In Kansu the pre-historic settlements became adapted to a pre-existing topography (Hui Tsui, Lo Han T'ang W). The Pu Chao Chai and Yang Shao Tsun sites were built on the undulating loess plain, which was later dissected by retrograde ravine erosion.

At first sight this looks as if the geographical environment was radically different in Kansu and in Honan. Still I hold the view that sites may also be found topographically like Pu Chao Chai and Yang Shao Tsun in Kansu, and vice versa Honan sites with a Kansu setting. The Kansu sites studied by us are all situated in front

of the Malan terrace, whereas Pu Chao Chai and Yang Shao Tsun are located about 10 km behind the erosion front. Sites with a similar location may be found in Kansu some distance from the T'ao valley. On the other hand, the Ho Yin sites of Honan which were never visited by me, may possibly offer a setting comparable with that of Hui Tsui and Lo Han T'ang W of Kansu, as they are located near the river front of the loess terrace.

When we compare the furniture of the Honan sites with that of Kansu, some fundamental facts should be borne in mind:

The Ch'i Chia P'ing stage, held to be the earliest of the Kansu cultures, has no counterpart in Honan. As it is proved that Yang Shao Tsun in Honan and Ma Chia Yao in Kansu are strictly contemporaneous (see »Prehistory», page 104) it is possible that Ch'i Chia P'ing may be older than anything we know in Honan.

On the other hand, there are in Honan at Pu Chao Chai (and also in Shansi, as for instance at Yang Chü Chen and Pei Ti Wu N. of Taiyuanfu sites with identically the same furniture as that of Yang Shao Tsun, with one very fundamental exception: there is no trace of painted pottery. There is hardly any likelihood that the sites *with* and those *without* painted pottery were strictly contemporaneous: Pu Chao Chai must be so much older than Yang Shao Tsun that the painted pottery had not yet come into use, or else so much later that the painted ceramics no longer formed part of the household furniture.

As Pu Chao Chai (and also others of the paintless sites) seem to contain objects of a late type, I have considered the latter alternative to be the more probable, though very uncertain. I am here speaking of Yang Shao sites *with* painted pottery (type Yang Shao Tsun) and *without* painted pottery (type Pu Chao Chai).

Our next question to be settled is the relationship between Yang Shao Tsun and the Ho Yin sites. The painted pottery of all these sites is closely related, but there are features indicating that the Ho Yin painted ceramics are the richer and the more developed of the two. Thus, for instance, the rare occurrences of trellis-filled rhombi are a feature foreshadowing Late Yang Shao time. For these not very conclusive reasons I consider that the Ho Yin sites are slightly later than Yang Shao Tsun.

When we now proceed to compare Honan prehistory with that of Kansu, we should bear in mind the much wider range of time covered by the prehistory of Kansu. I have pointed out this remarkable difference in »Prehistory», page 222—223, from which I quote:

»On the whole we are entitled to state that, in spite of certain innovations at different times, there was remarkable continuity in the development of the ceramic art of Kansu during two thousand years from 2500—500 B. C.

In this respect Kansu stands in marked contrast to Honan, where Yang Shao is not only the first but also the last stage of prehistoric painted pottery. This we can explain only by assuming that in Honan one or more pre-Anyang stages, Hsia

or whatever other name we may use, mark the very beginning of dynastic China, suppressing the painted pottery in favour of the new bronze art.

The later stages of Kansu were contemporaneous with the early dynasties of Honan-Shensi. Nevertheless it is noteworthy how few are the parallels between Kansu and dynastic China during the twelve hundred years 1700—500 B. C. The meanders of Ma Chang and Hsin Tien, together with the Li tripods with bulbous legs of Ma Chang-Ssu Wa (in shape very like early bronze Li), are almost the only contacts with dynastic China to which I am able to point. Everything goes to show that during the Yin and Chou dynasties Kansu remained a relatively closed backblock, receiving impulses from quarters other than the dynastic area.

The Yang Shao culture had a wide dispersion, ranging probably from Sha Kuo T'un to near Kokonor.

Counting from the end of Yang Shao, Kansu becomes an art centre of its own, developing a remarkable succession of painted pottery cultures.»

It is only the Yang Shao deposits of Kansu that can be compared with the Honan sites. In one way, indicated already above, this comparison is easy and conclusive: the finds in southern Kansu (see »Prehistory» page 104) expose a blending of Yang Shao Tsun and Ma Chia Yao features in a way proving that these sites were strictly contemporaneous. When comparing Middle Yang Shao of Kansu with Yang Shao Tsun and the Ho Yin sites we are concerned not with a difference in time but with a provincial differentiation of contemporaneous sites.

This comparison is rendered difficult by the fact that so very little is known about the mortuary pottery of the Honan settlements. We know of no graves at Ho Yin.

A number of graves were found at Yang Shao Tsun, specially in the large village cemetery loc. XII (»Prehistory» page 244—47). Only in one of these graves was any ceramic furniture found (»Prehistory» Pl. 200). These five vessels, all of which belong to the monochrome group, are just as if they had been taken out of the ordinary monochrome household pottery of Yang Shao Tsun. This grave Q of Yang Shao Tsun has no relationship whatsoever with the highly specialized painted mortuary pottery of Kansu (Pan Shan type).

The standard vessel of the Pan Shan graves is an urn with a narrow mouth (»Prehistory» Pl. 80—86). Urns with a narrow mouth also occur in the household furniture of Middle Yang Shao in Kansu (»Prehistory» Pl. 56—57). These Kansu urns with a narrow mouth have no counterpart in the painted pottery of Yang Shao Tsun and Ho Yin.

There are further differences between the painted pottery of Honan and Kansu. The Honan painted bowls are *never* painted on the inside, whereas in Kansu the bowls are very often painted on the inside.

In Kansu we find no counterpart to the white slip so profusely used as background to the black and red painting in Ho Yin, and to some extent also in Yang Shao Tsun. On the most exquisite small bowls from Yang Shao Tsun a red slip with high polish is used beneath the black paint.

In the refinement of the delicate thin walls and the lustrous red slip Yang Shao Tsun stands inimitable. Ho Yin ranks first in the brilliance of its multicoloured geometrical patterns (Arne: Painted Pottery Pl. IV, 11.)

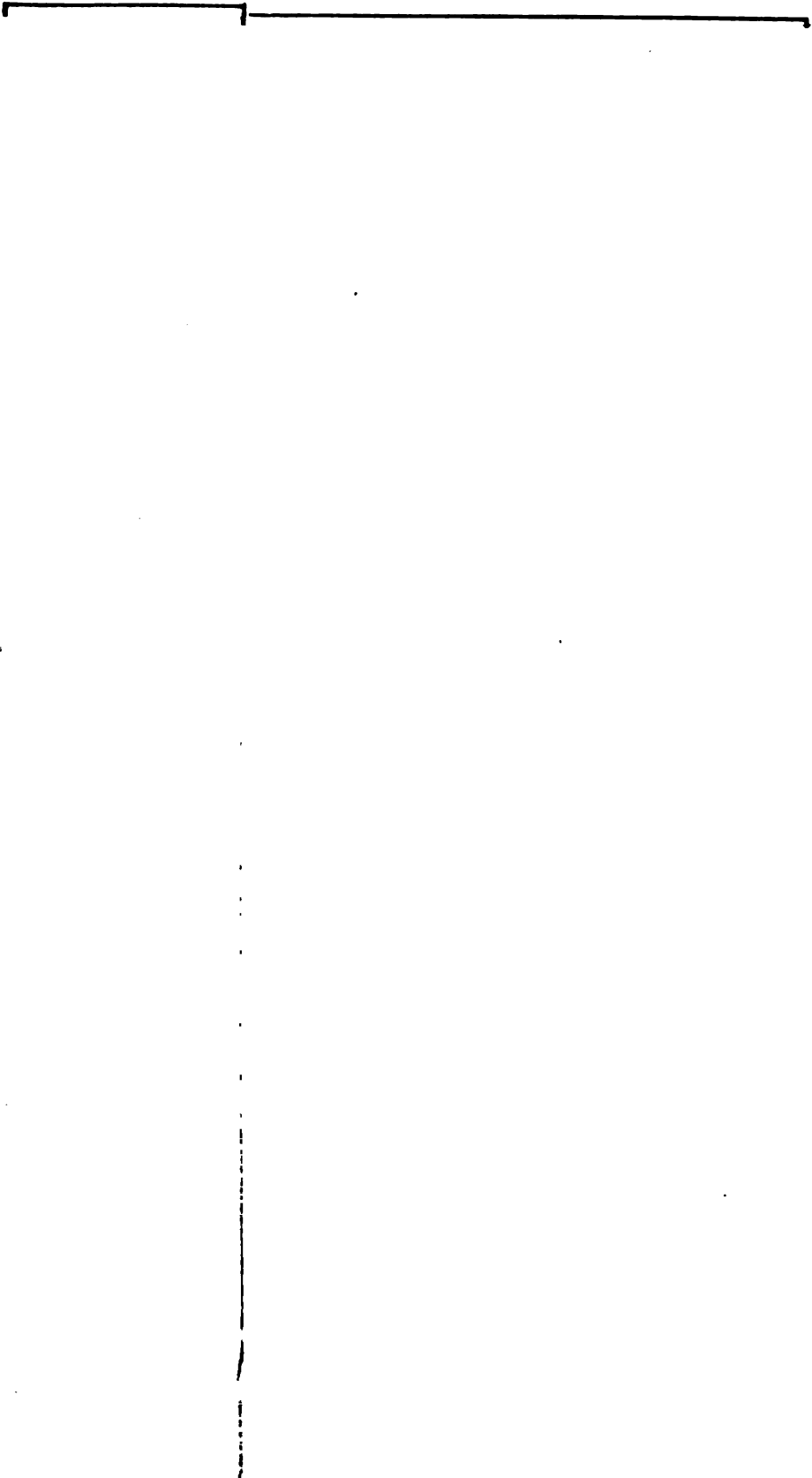
In variety of patterns, including zoomorphic and plant designs, the household pottery of Kansu stands in a class by itself.

In strictly orthodox but endlessly varied bold geometrical designs built up round the «death pattern» the mortuary pottery of Pan Shan stands unrivalled.

The Honan sites offer certain features recurring in N. Shansi and in SW Manchuria. The broad marginal band on bowls from Nien Yen Tsun in N. Shansi («Prehistory» page 145) recurs in Yang Shao Tsun.

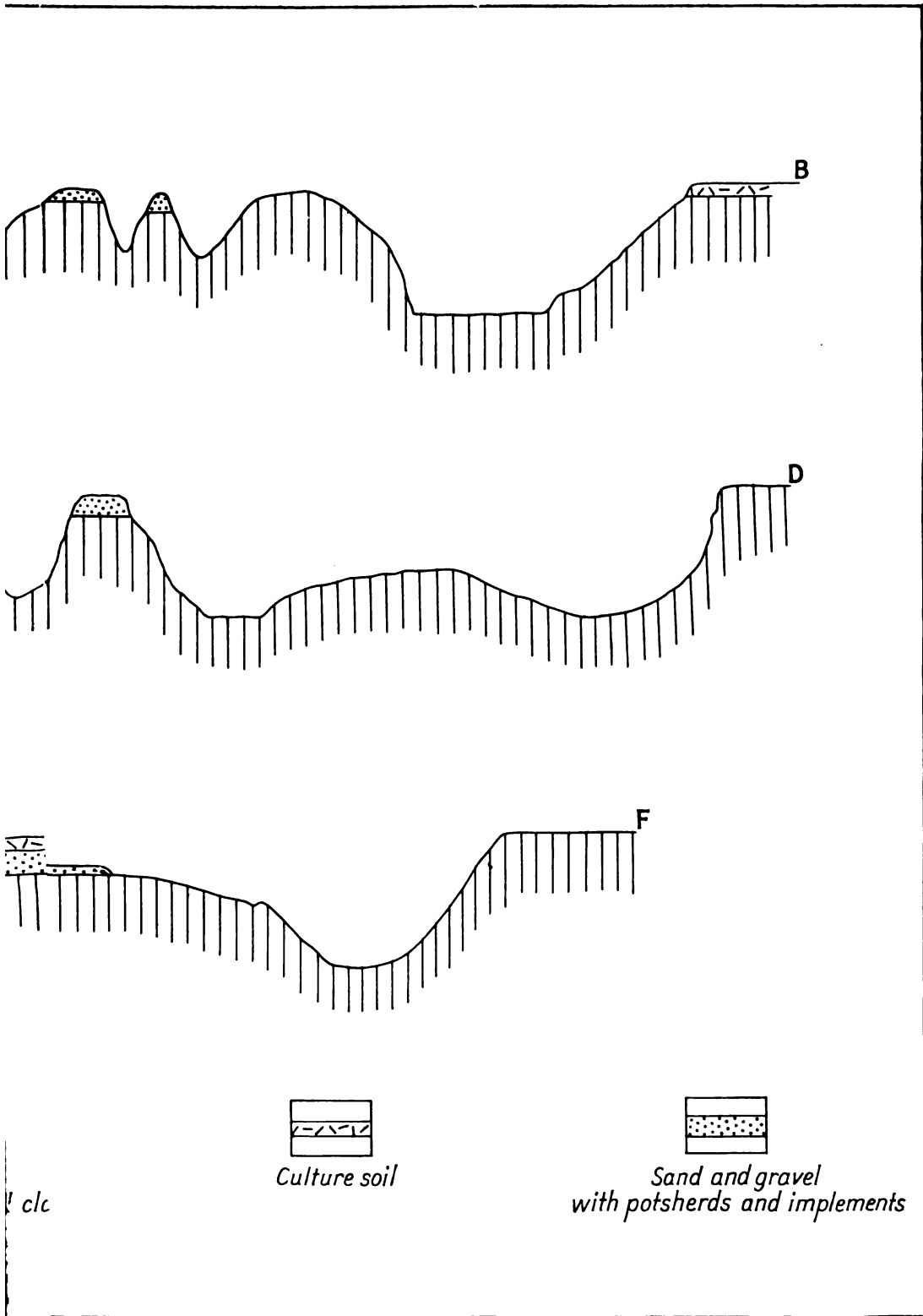
The zigzag pattern of the Ho Yin monograph Pl. 137, 6—7 was also found in the Sha Kuo T'un cave (see this monograph Pl. XI, 2, 3, 8).

MAP I.

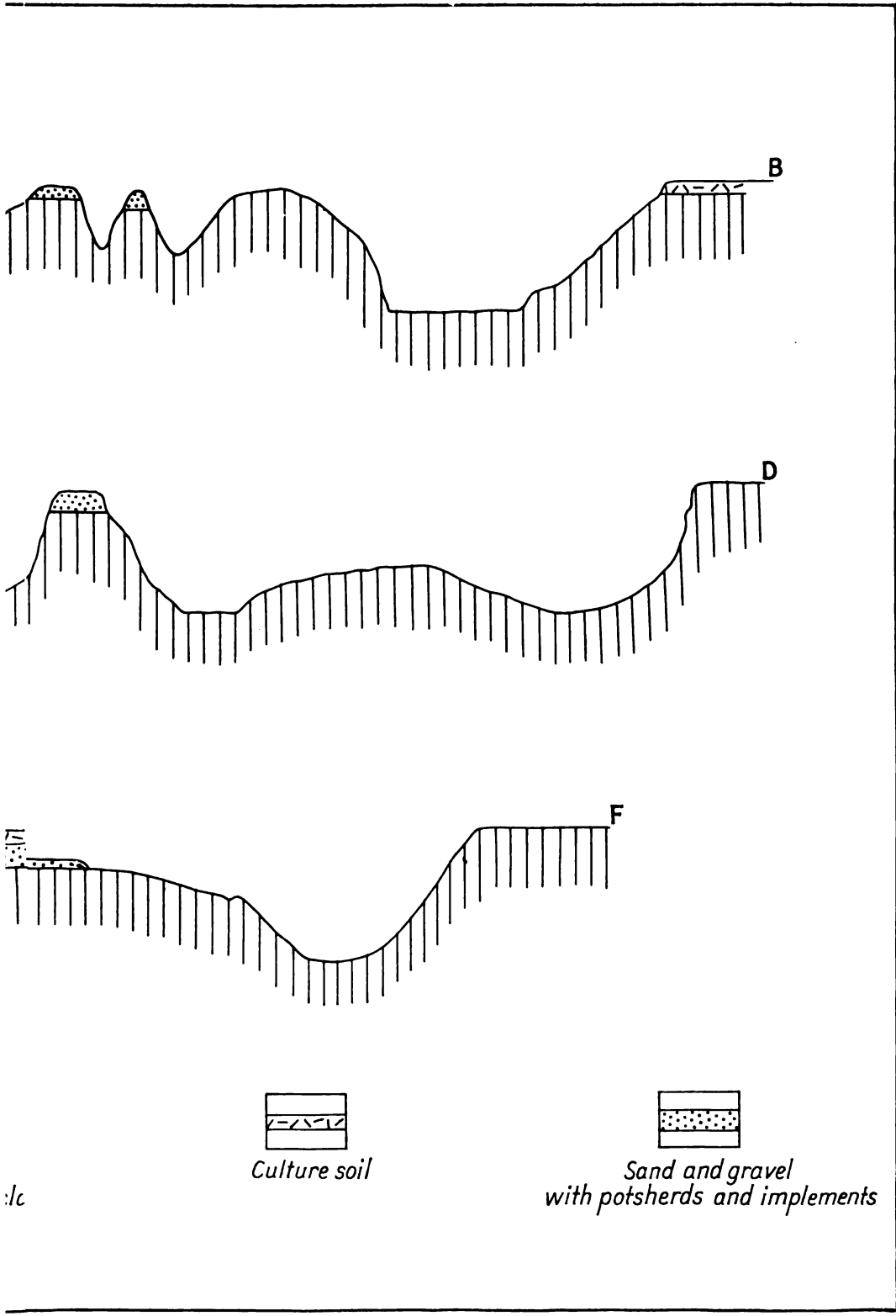




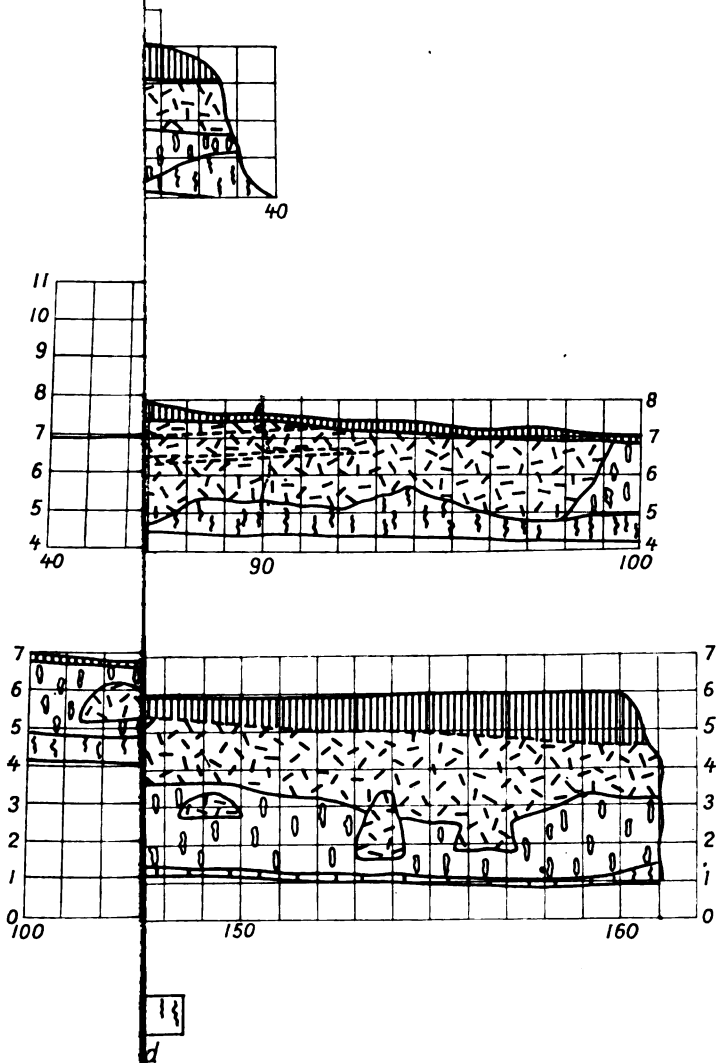
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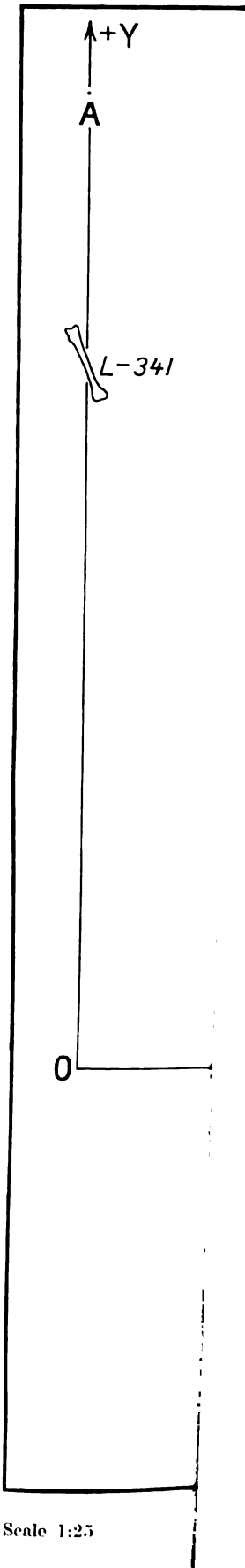




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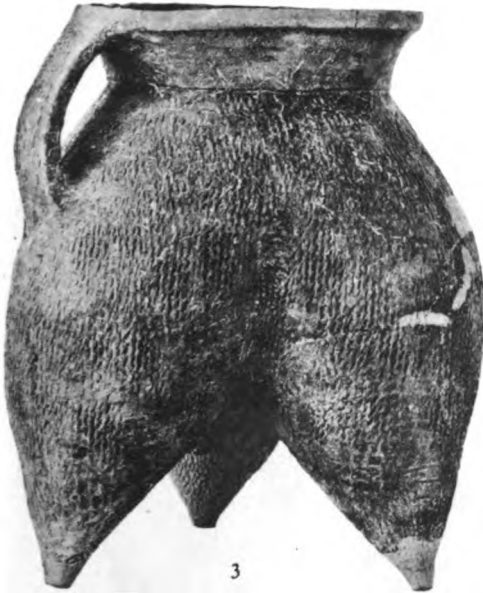


MAP IV.



Scale 1:25

}



Yang Shao Tsun. 1. 2 $\frac{1}{2}$; 3. 4 $\frac{1}{3}$



1



2



3



4



5



6

Yang Shao Tsun. 1/3



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Yang Shao Tsun. 1/2



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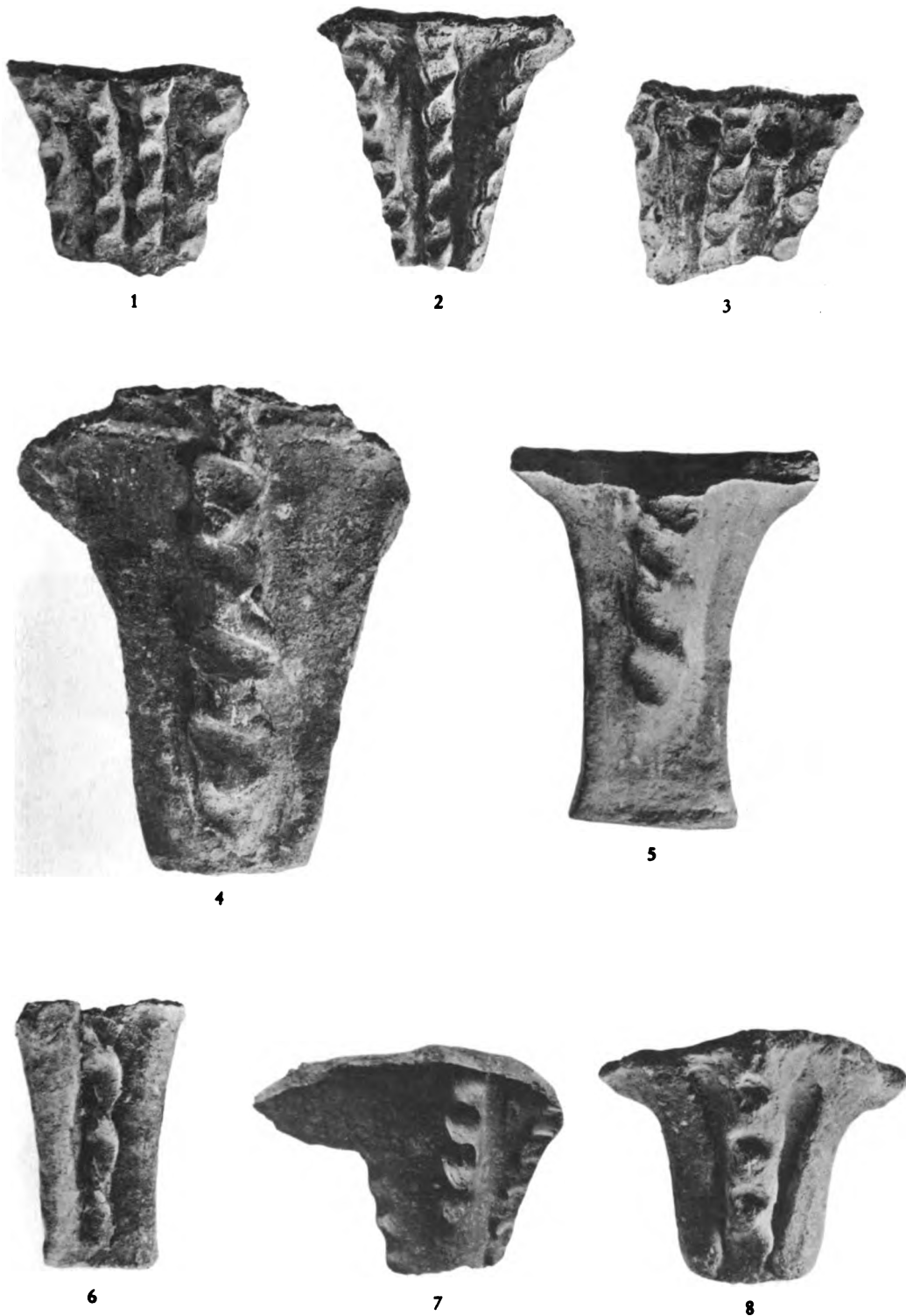


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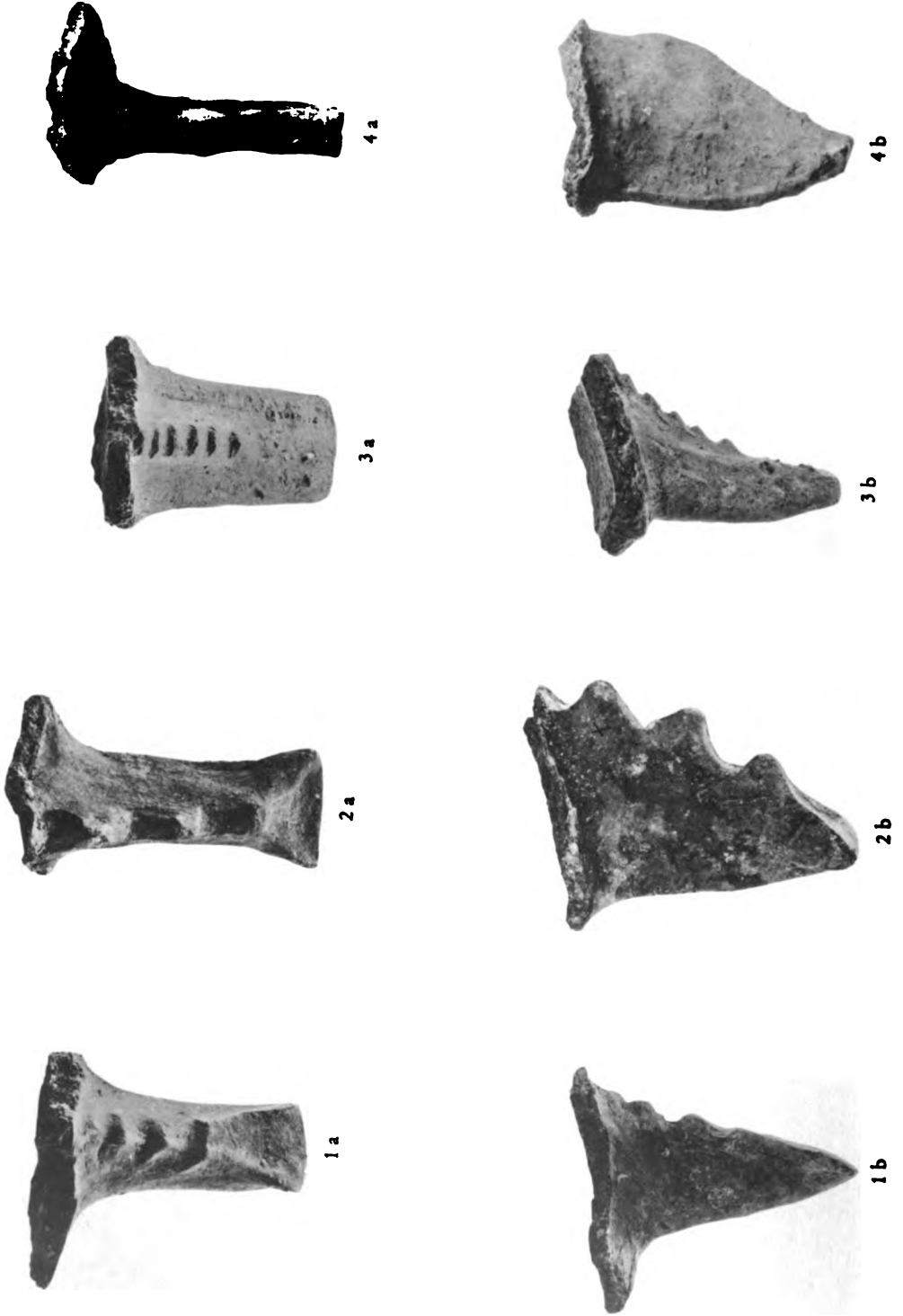


9

Yang Shao Tsun. 1/2



Yang Shao Tsun. $\frac{1}{2}$





1



2 a



2 b



3 b



3 a



4 a



4 b

Yang Shao Tsun. 1/2



1



2



3



4

Yang Shao Tsun. 1. $4 \frac{1}{3}$; 2. $3 \frac{1}{2}$



1



2



3



4

Yang Shao Tsun. 1/3



1



2



3



4

Yang Shao Tsun. 1. 4 1/2; 2, 3 1/8



1



2



3



4



5

Yang Shao Tsun. 1/2



1



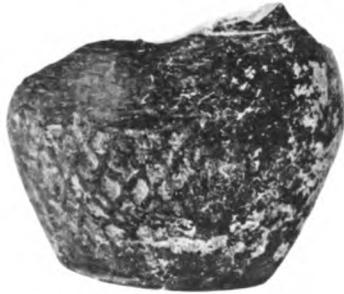
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8



9

Yang Shao Tsun. 1/2



1



2

9)



3



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5



Yang Shao Tsun. 2 $\frac{1}{3}$. all the rest $\frac{1}{2}$



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2



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5



6

Yang Shao Tsun. 1/2



1



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4

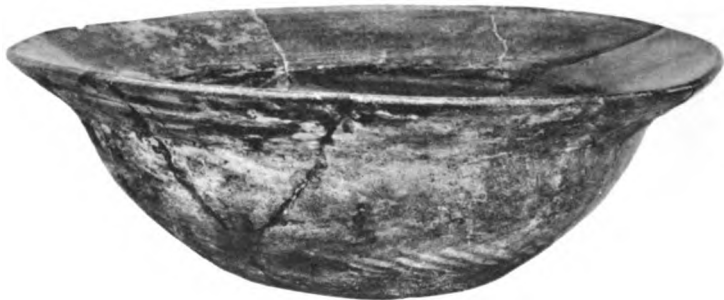


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Yang Shao Tsun. 1/2



1



2



3

Yang Shao Tsun. $\frac{1}{3}$



1



2



3

Yang Shao Tsun. 1 $\frac{1}{2}$; 2. 3 $\frac{1}{3}$



1



2



3



4

Yang Shao Tsun. 1-3 $\frac{1}{2}$; 4 $\frac{1}{3}$



1



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6

Yang Shao Tsun. 1/2



1



2 b

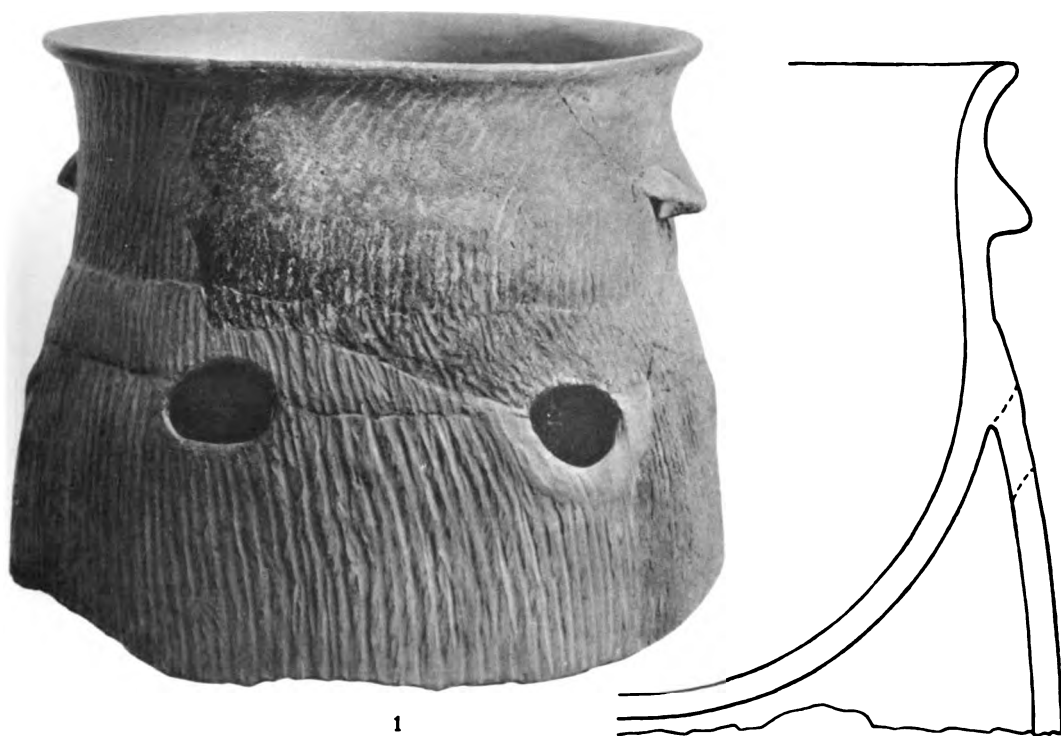


2 a

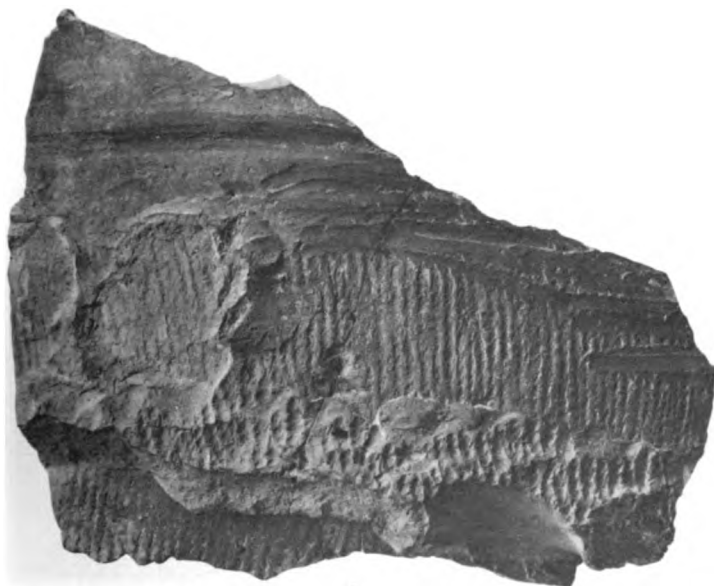


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Yang Shao Tsun. 1/3

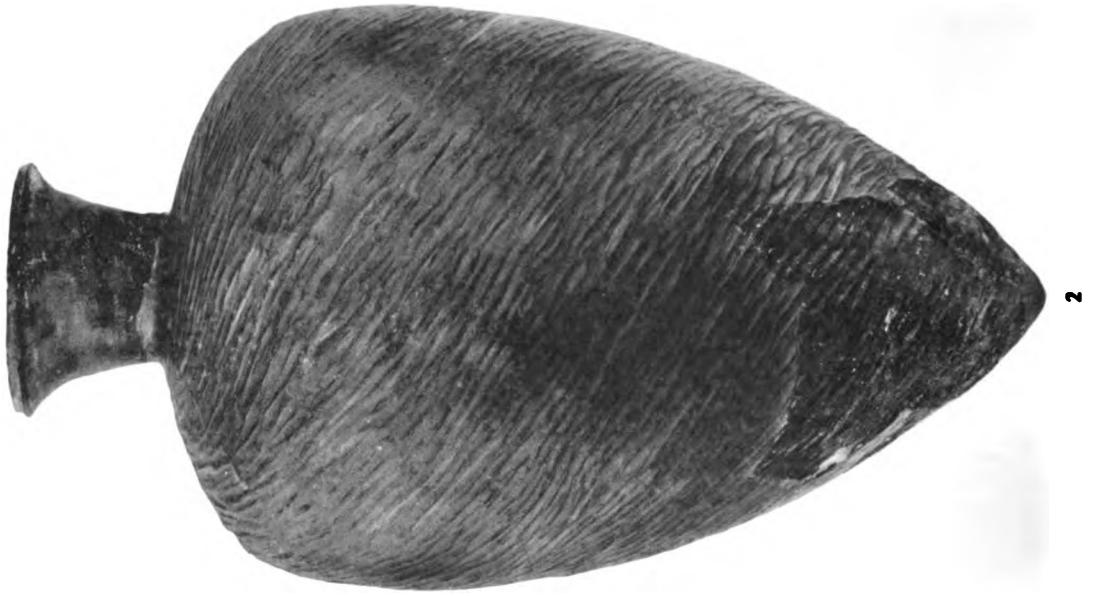


1



2

Yang Shao Tsun. 1/2





1



2 a



2 b



3

Yang Shao Tsun. 1/3



1



2



3 ✓



4 ✓



5 ✓



6 ✓



7



8 ✓

Yang Shao Tsun. 1/2



1



2



3



4



5



6

Yang Shao Tsun. 2/3



1



2



3



4



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6



7



8



9

Yang Shao Tsun. $\frac{2}{3}$



1



2



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4



5



6



7



8

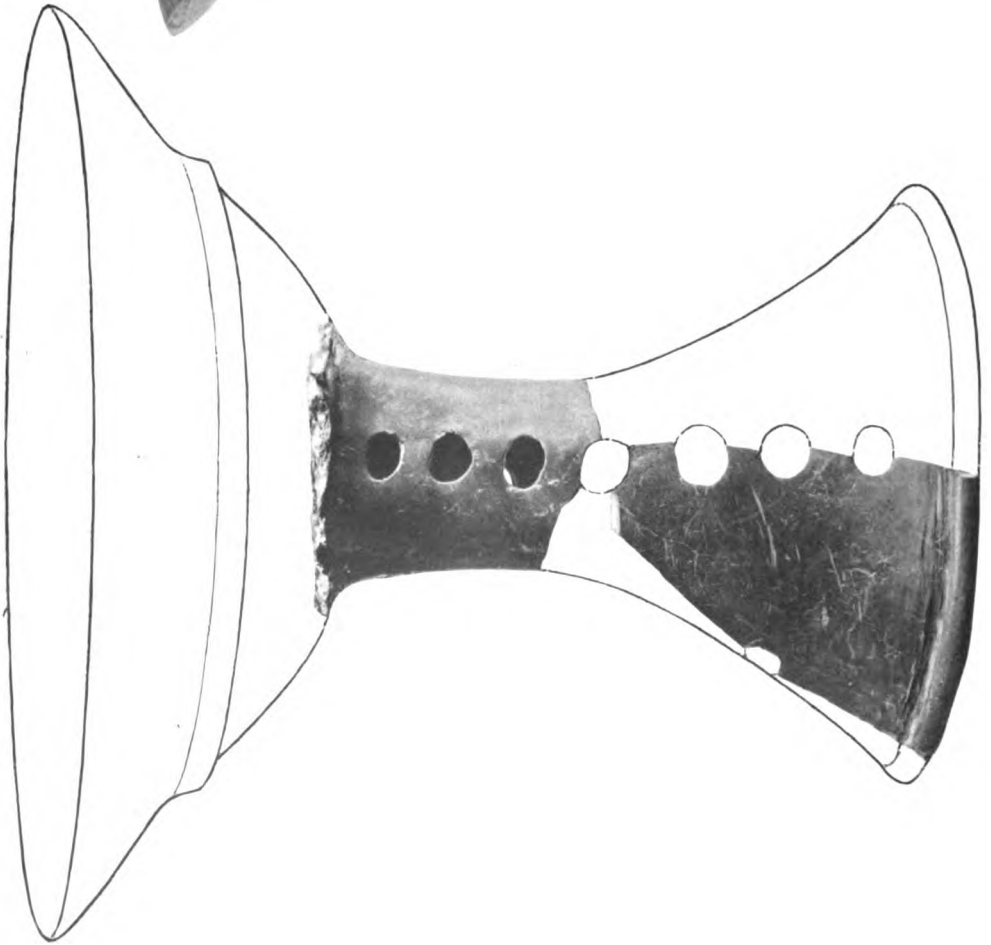


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Yang Shao Tsun. 1/1



1



2

Yang Shao Tsun. 1/2



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2



3

4

Yang Shao Tsun. $\frac{1}{3}$



1



2



3



4



5



6



7



8



9



10

Yang Shao Tsun. 1/2



1



2



3

v. p. 51.



4



5

Yang Shao Tsun. 1/2



1 a



1 b



2



3



4



5 a



6



5 b



8



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11



12



13



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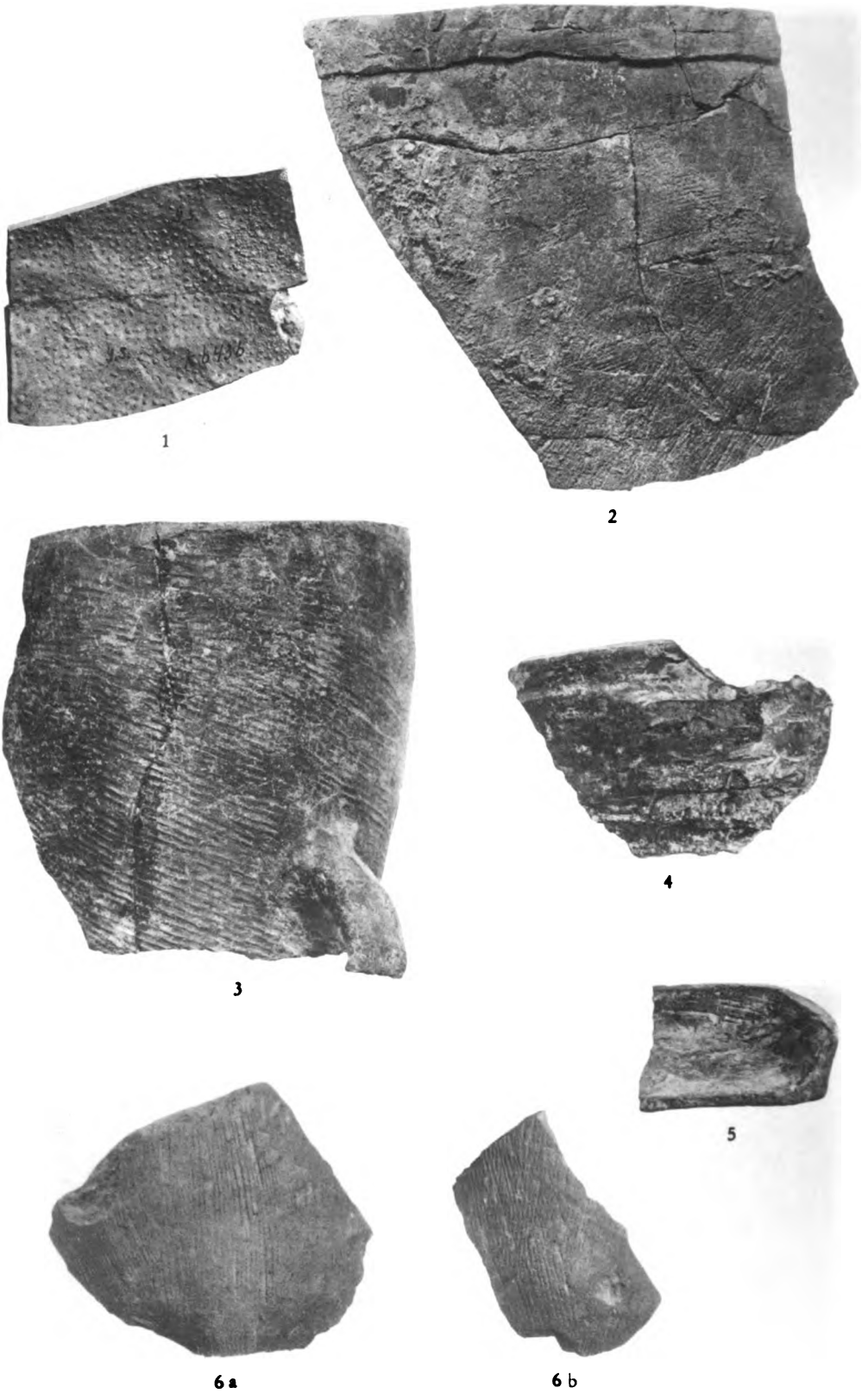


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12

Yang Shao Tsun. 1/2



Yang Shao Tsun. 1. 5 $\frac{1}{2}$: all the rest $\frac{1}{3}$



1



2



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4



5



7



6



8



9



10

Yang Shao Tsun. 1/2



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Yang Shao Tsun. 8. 9 $\frac{1}{3}$; all the rest $\frac{1}{2}$



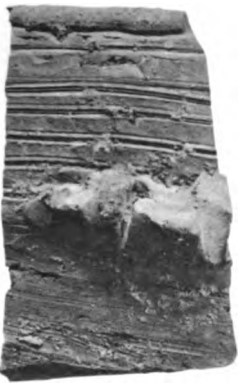
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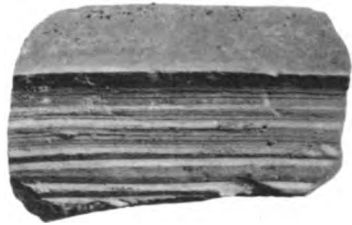
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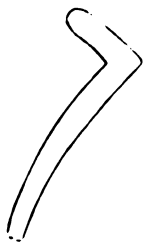
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7

Yang Shao Tsun. 1/2

Pl. 38.



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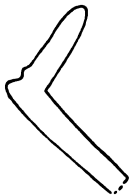
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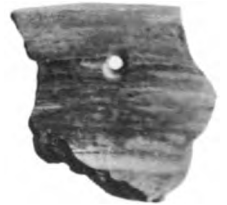
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10



11

Yang Shao Tsun. 1/2



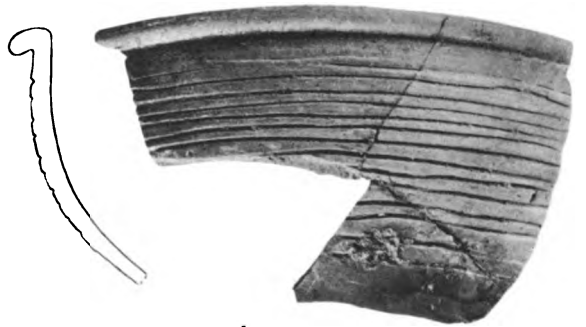
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Yang Shao Tsun. 1/3



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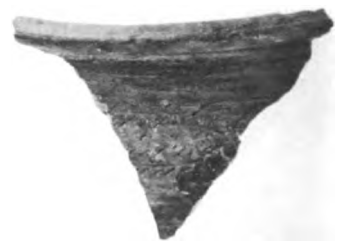
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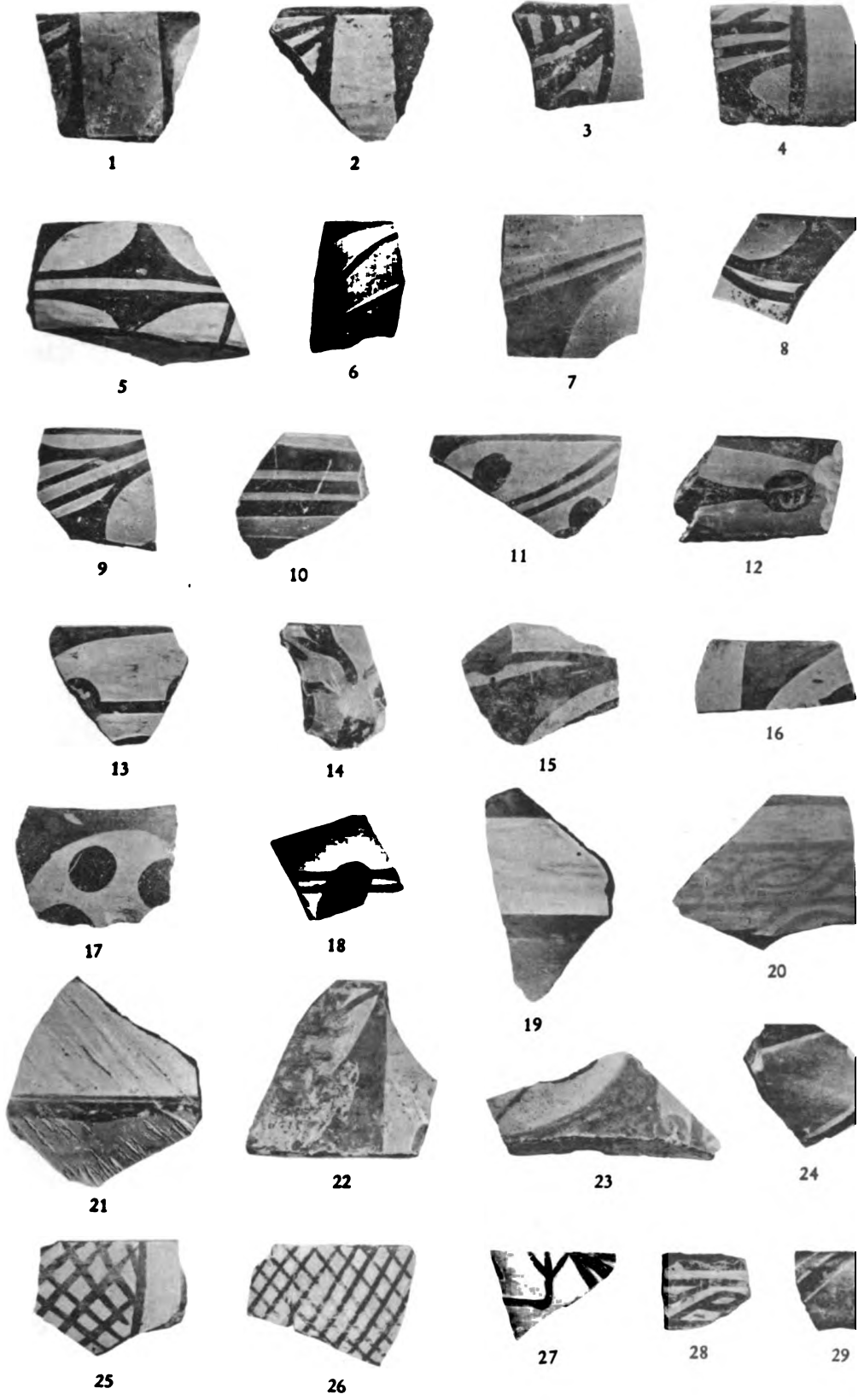
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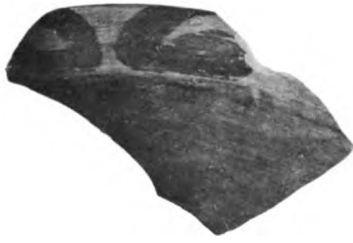
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Yang Shao Tsun. 1/2



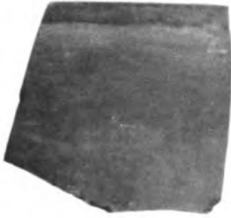
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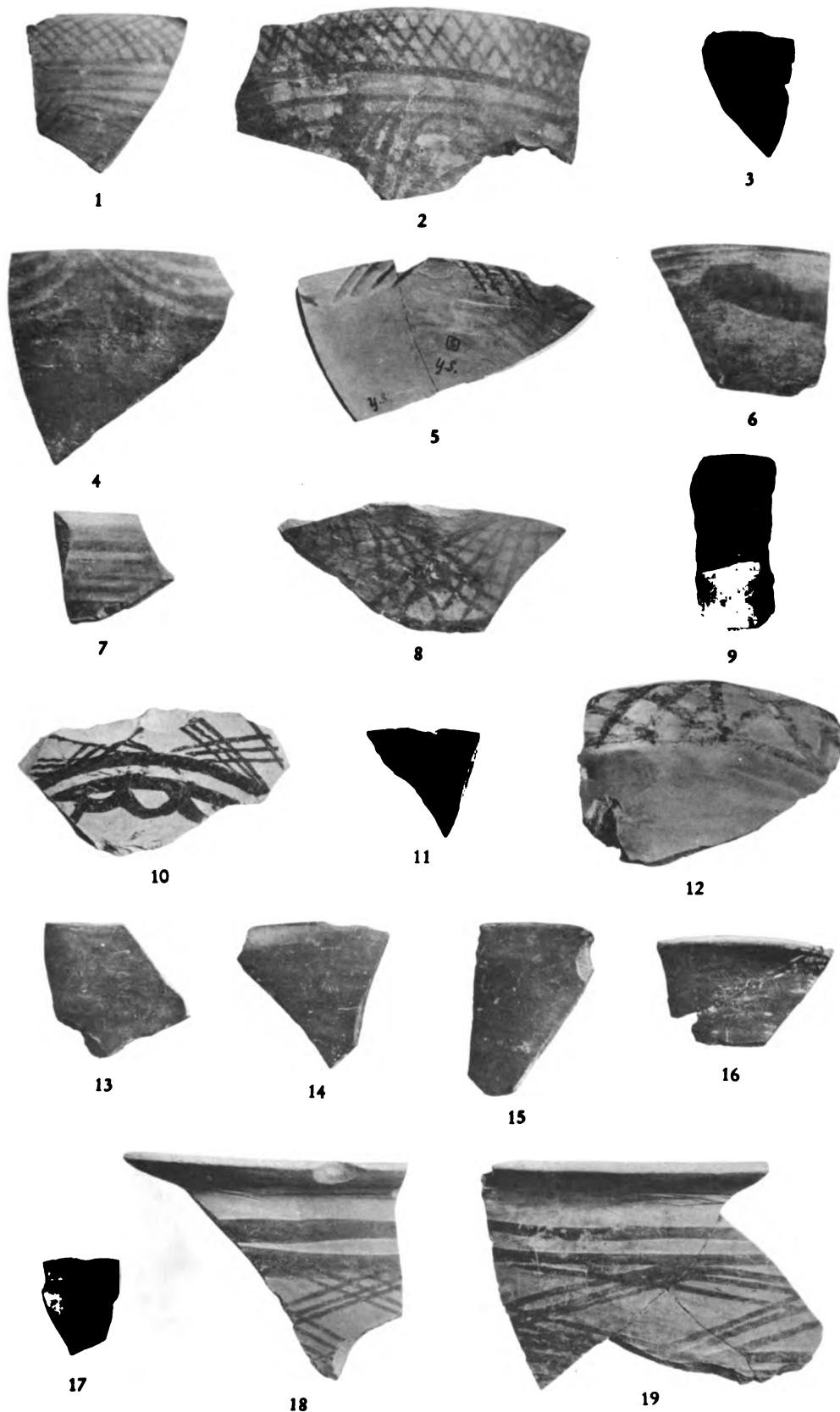
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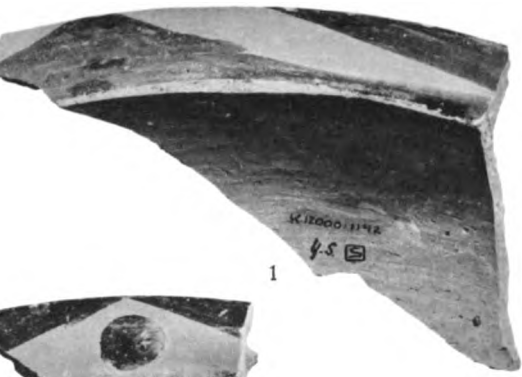
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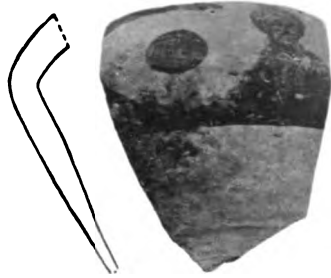
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Yang Shao Tsun. 1/2



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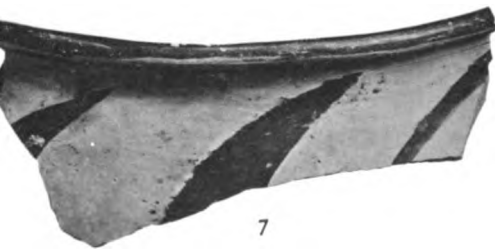
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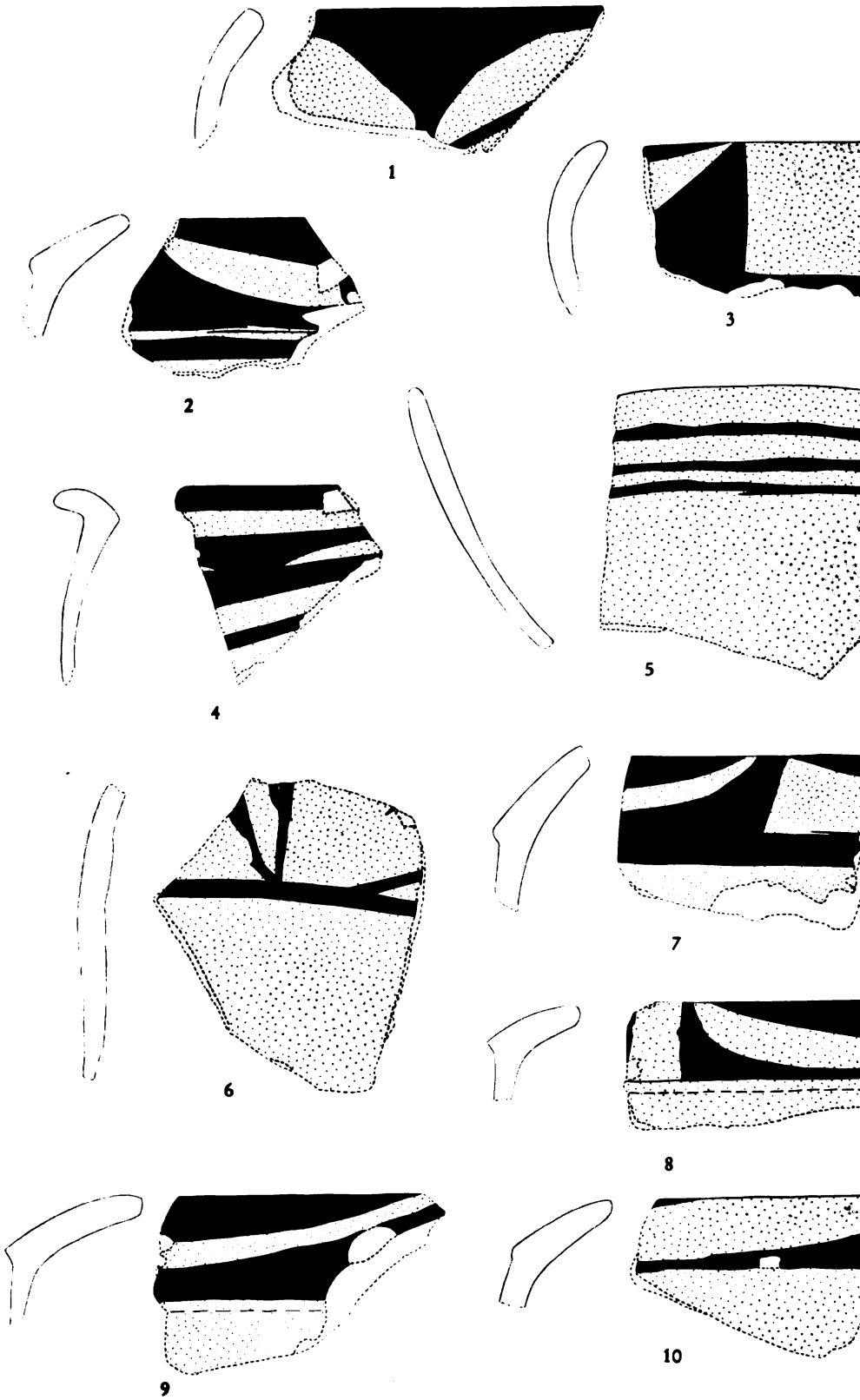


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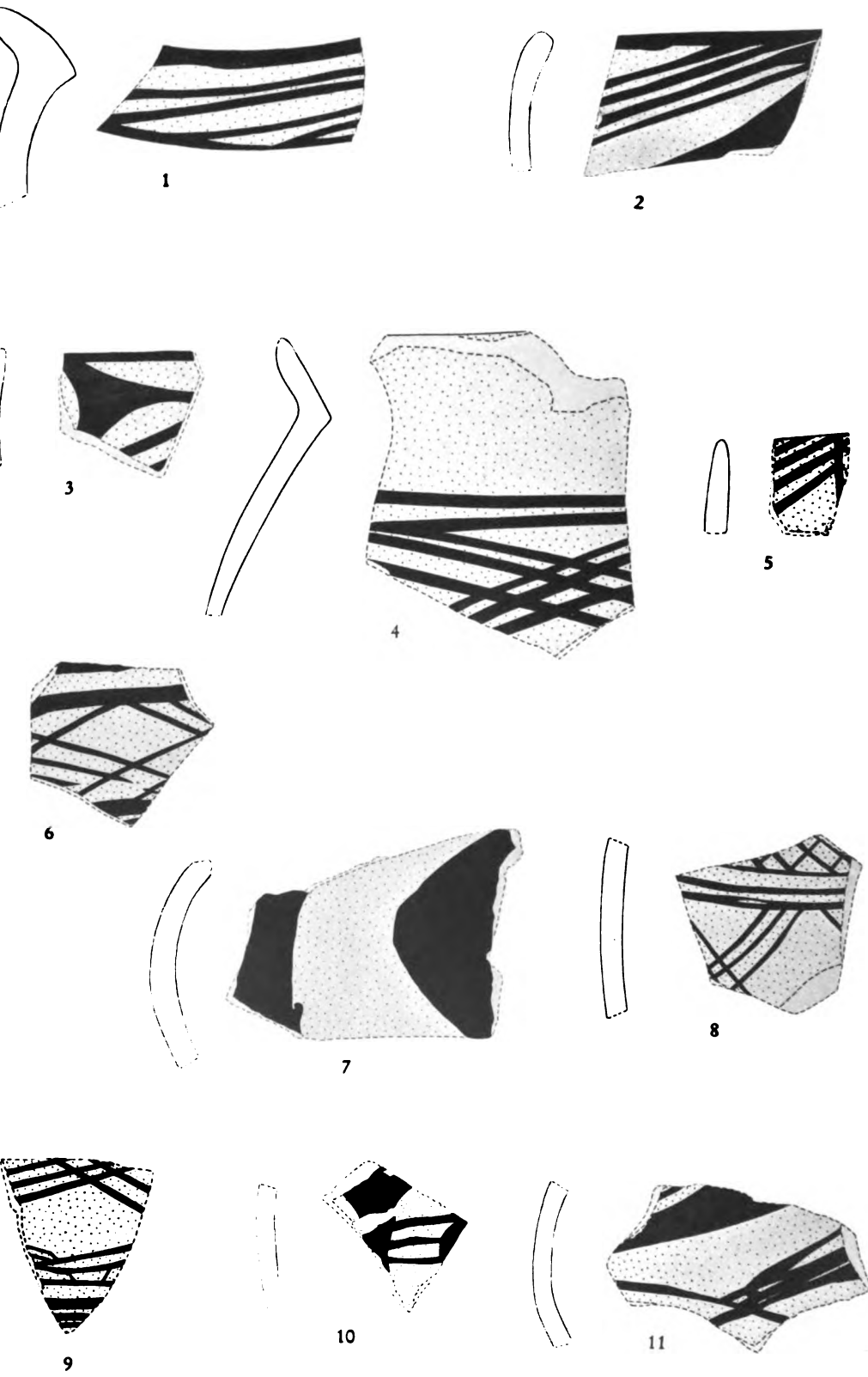


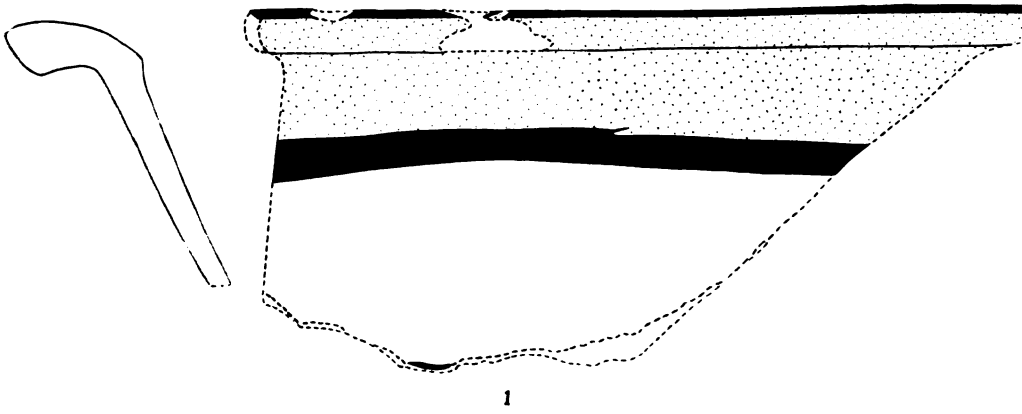
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Yang Shao Tsun. 1/2

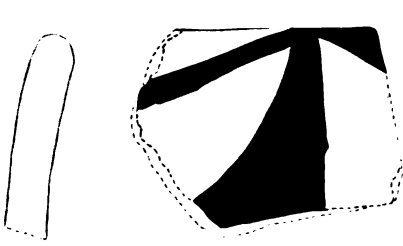


Yang Shao Tsun. 1/2

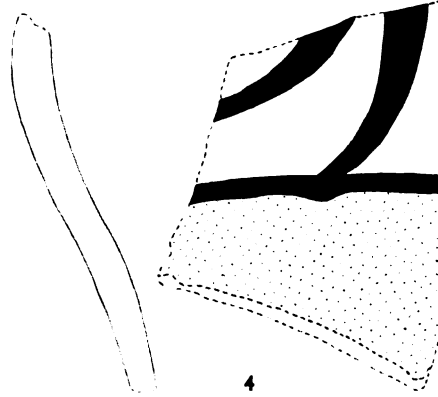




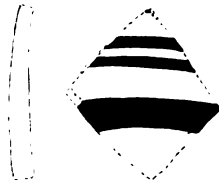
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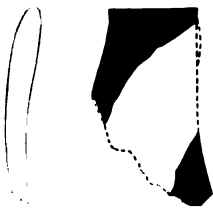
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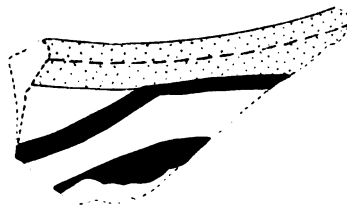
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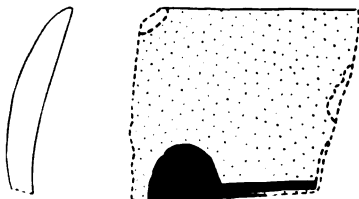
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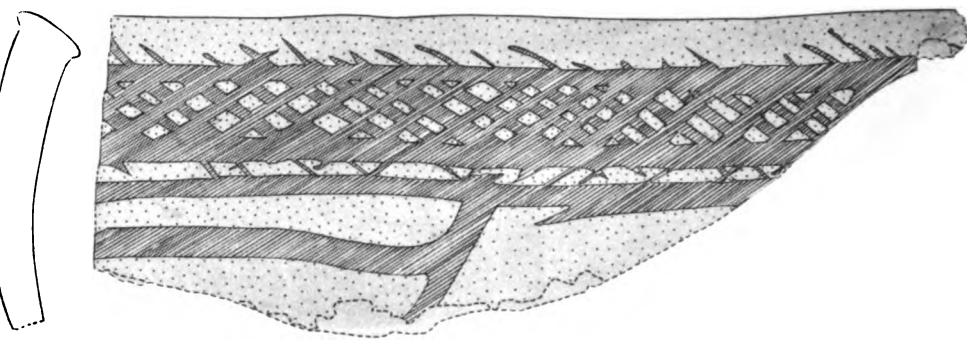
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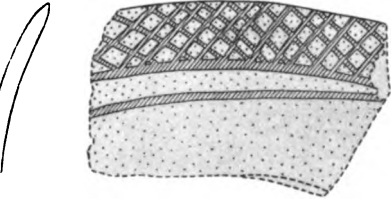
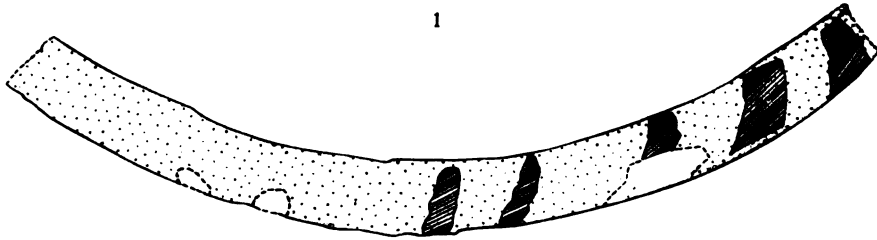
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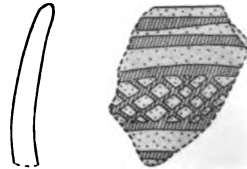
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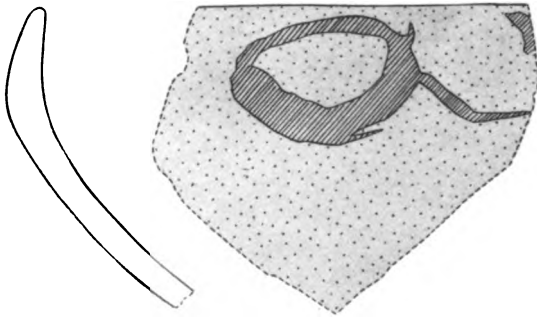
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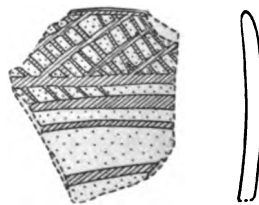
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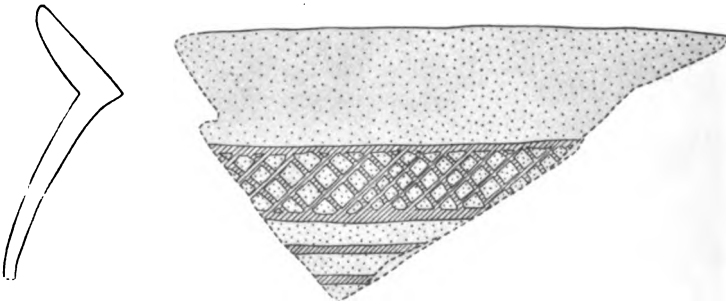
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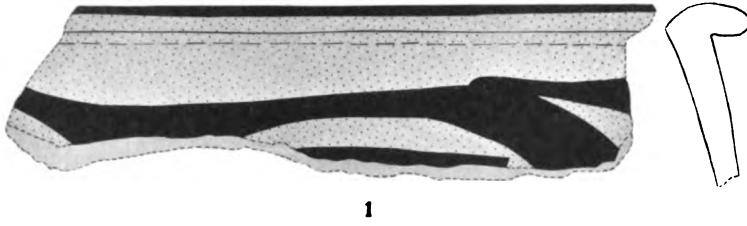
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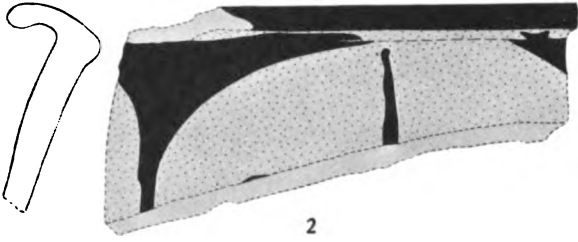
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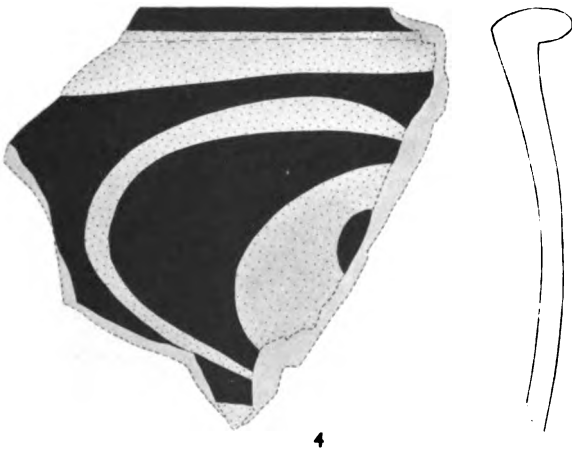
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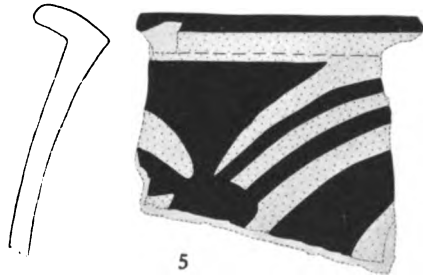
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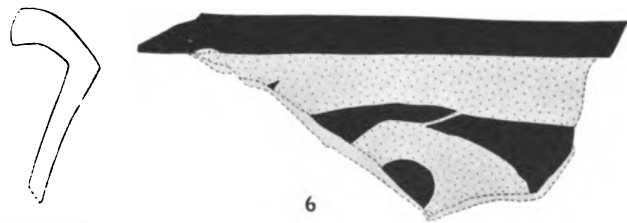
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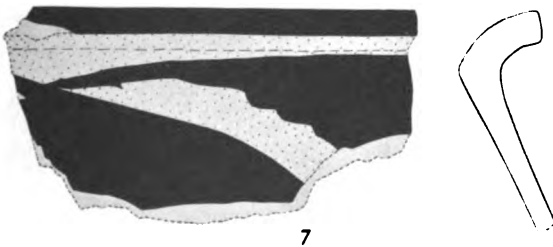
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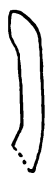


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Yang Shao Tsun. 1/2



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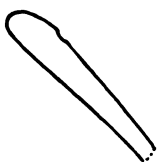
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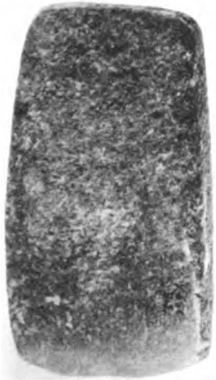
Yang Shao Tsun. 12



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Yang Shao Tsun. 1/2



Yang Shao Tsun. 1/2



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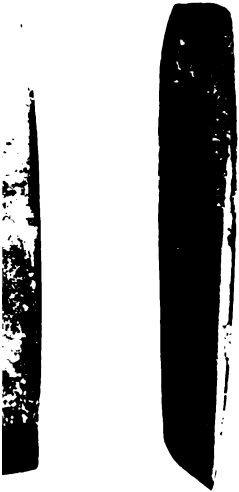
Yang Shao Tsun. 1/2



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Yang Shao Tsun. 1/2



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Yang Shao Tsun. 1, 3 1/1; all the rest 1/2



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Yang Shao Tsun. 1/1



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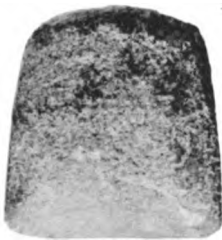
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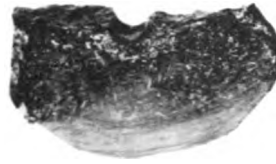


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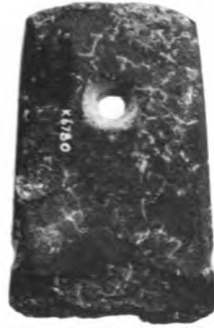
Yang Shao Tsun. 1/2



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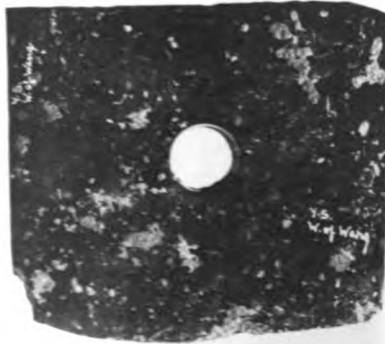
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Yang Shao Tsm. 42



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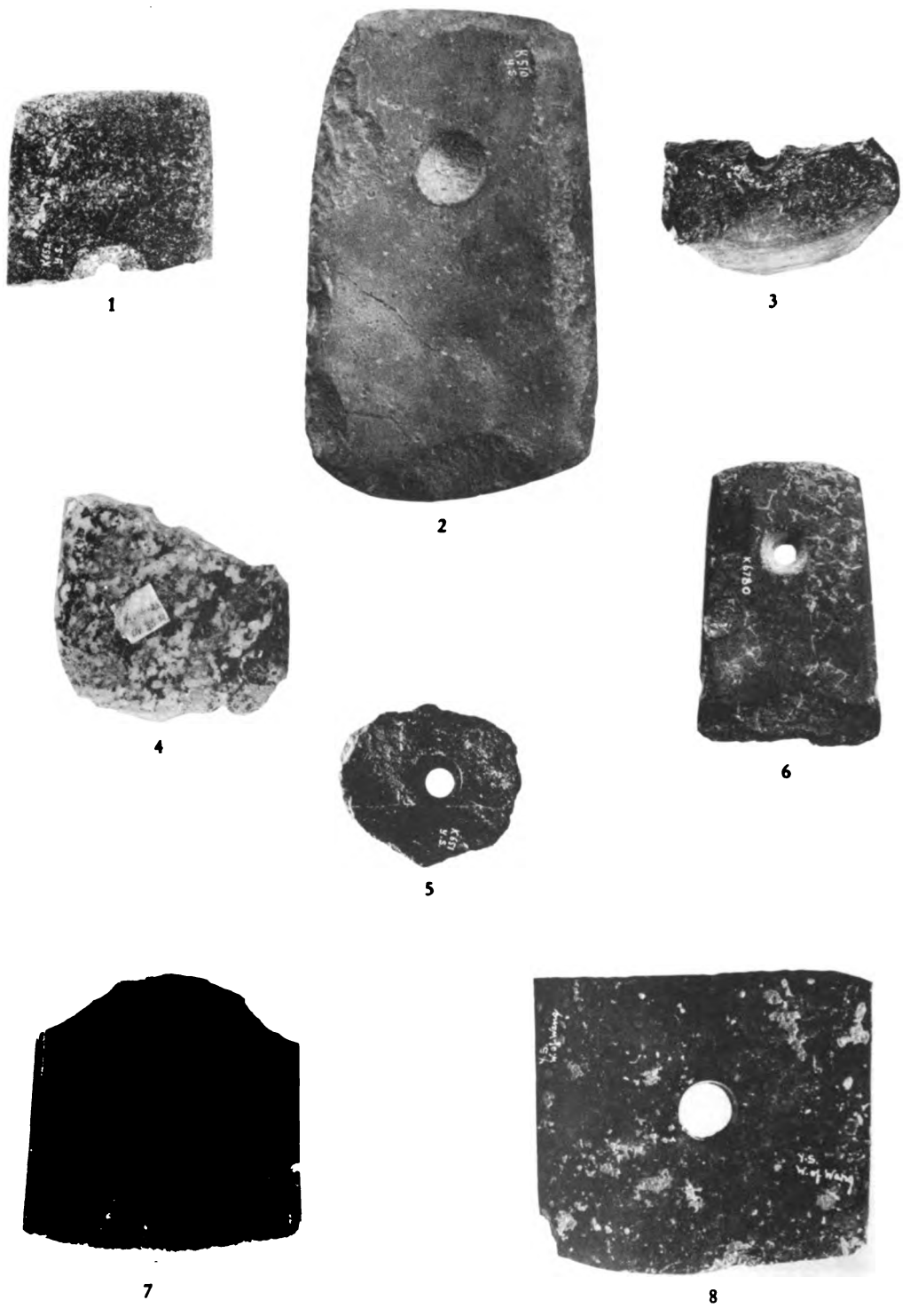


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Yang Shao Tsun. 1/2



Yang Shao Tsun. 1/2



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Yang Shao Tsun. 1/2



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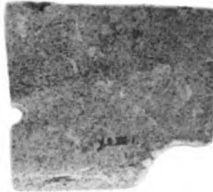
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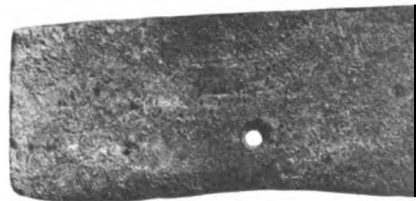
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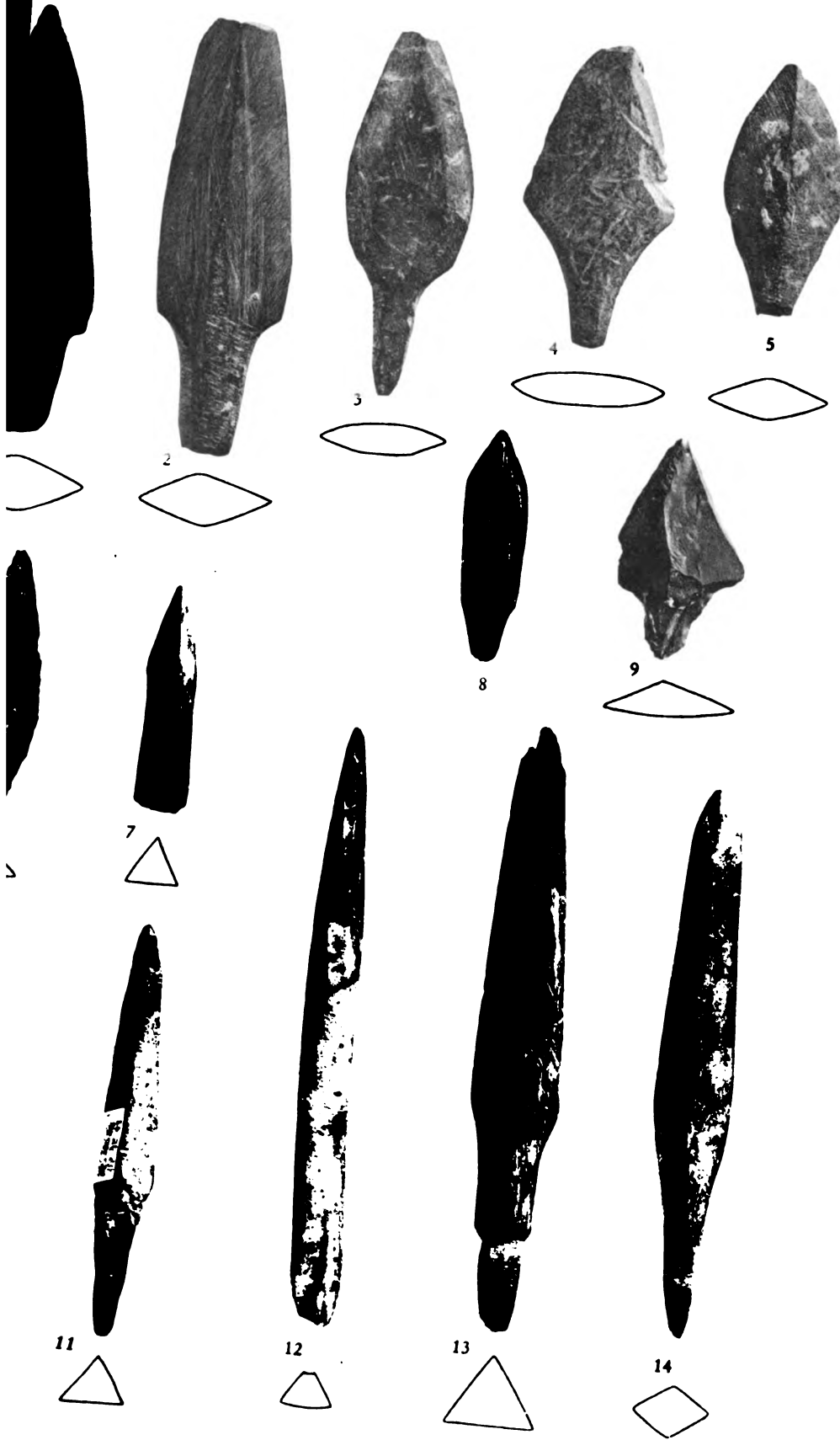


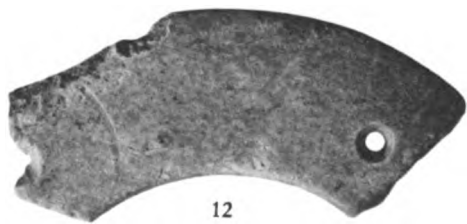
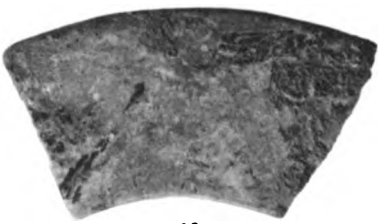
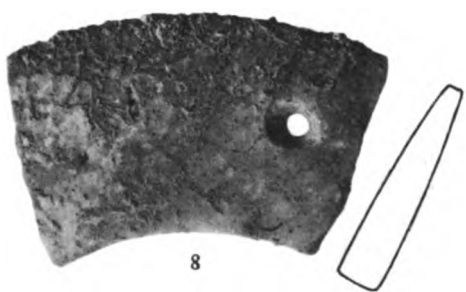
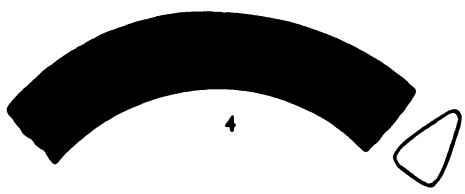
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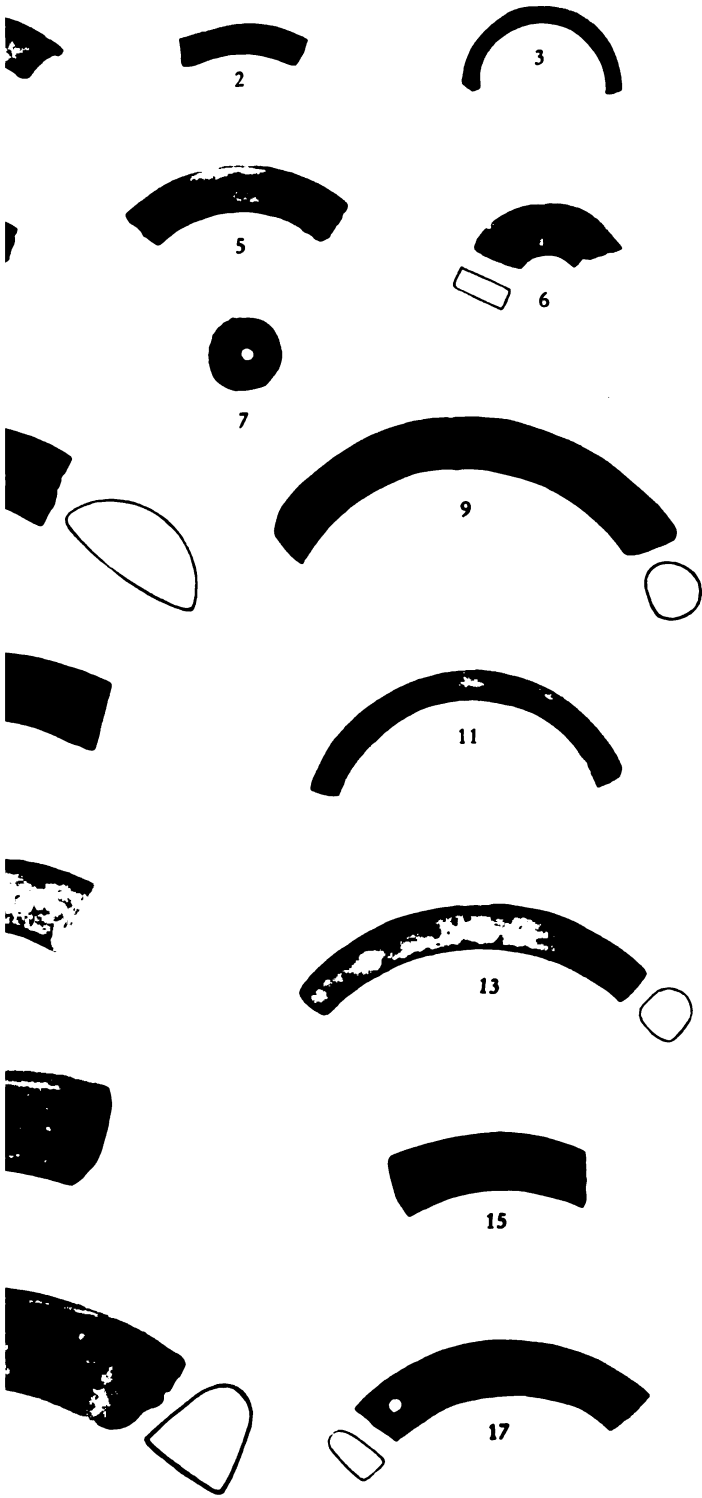


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Yang Shao Tsun. 1/2







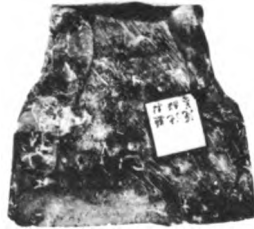
Yang Shao Tsun. 1/1



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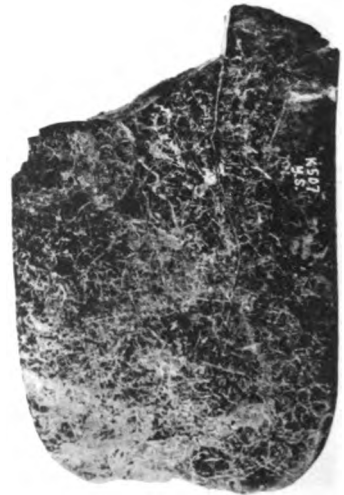
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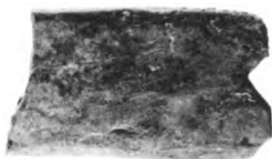


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Yang Shao Tsun. 1/2



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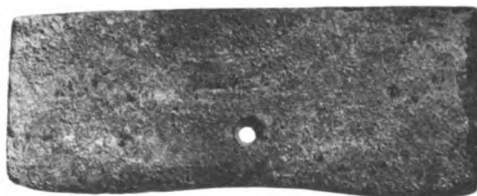
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Yang Shao Tsun. 1/2



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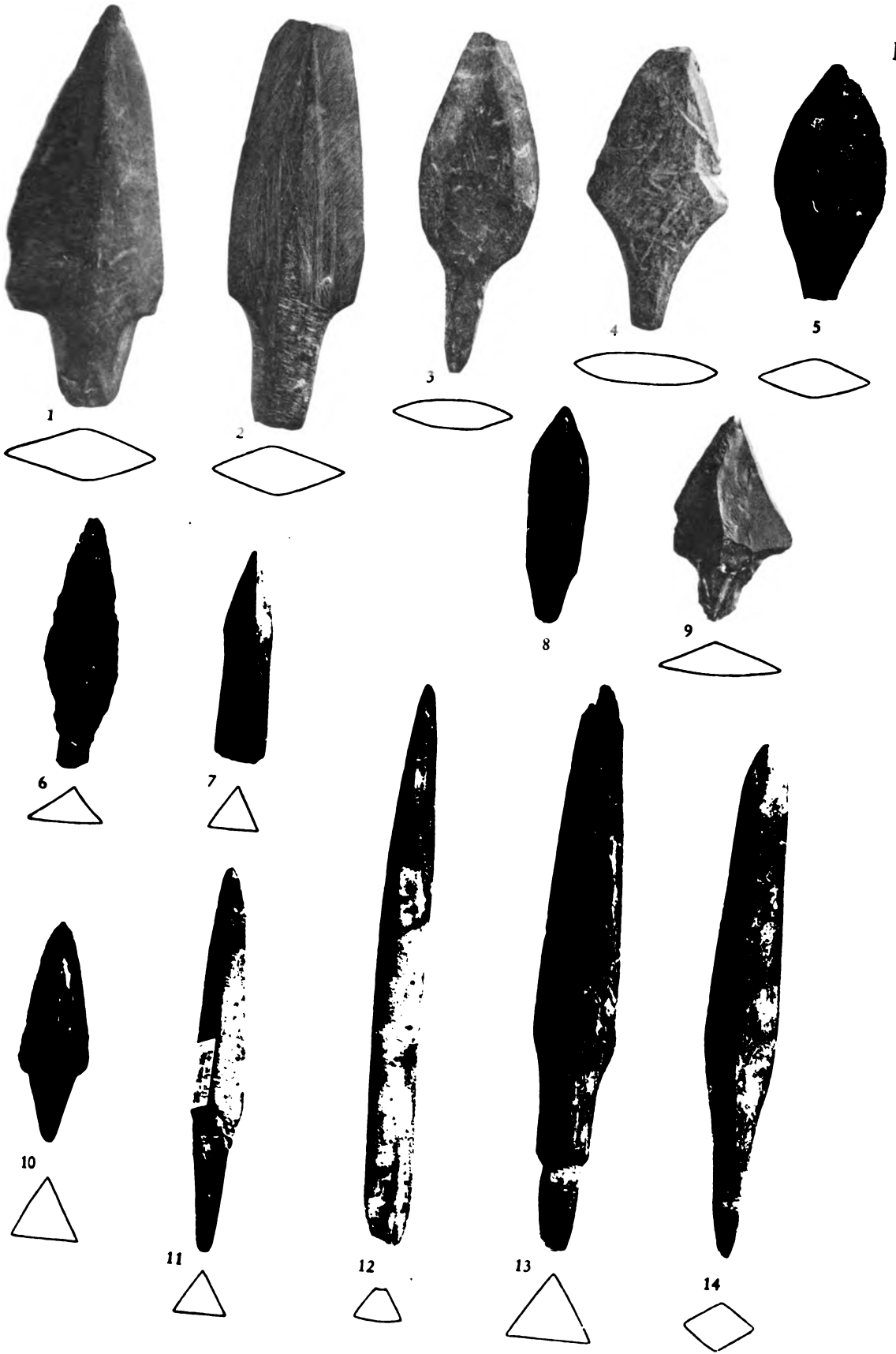
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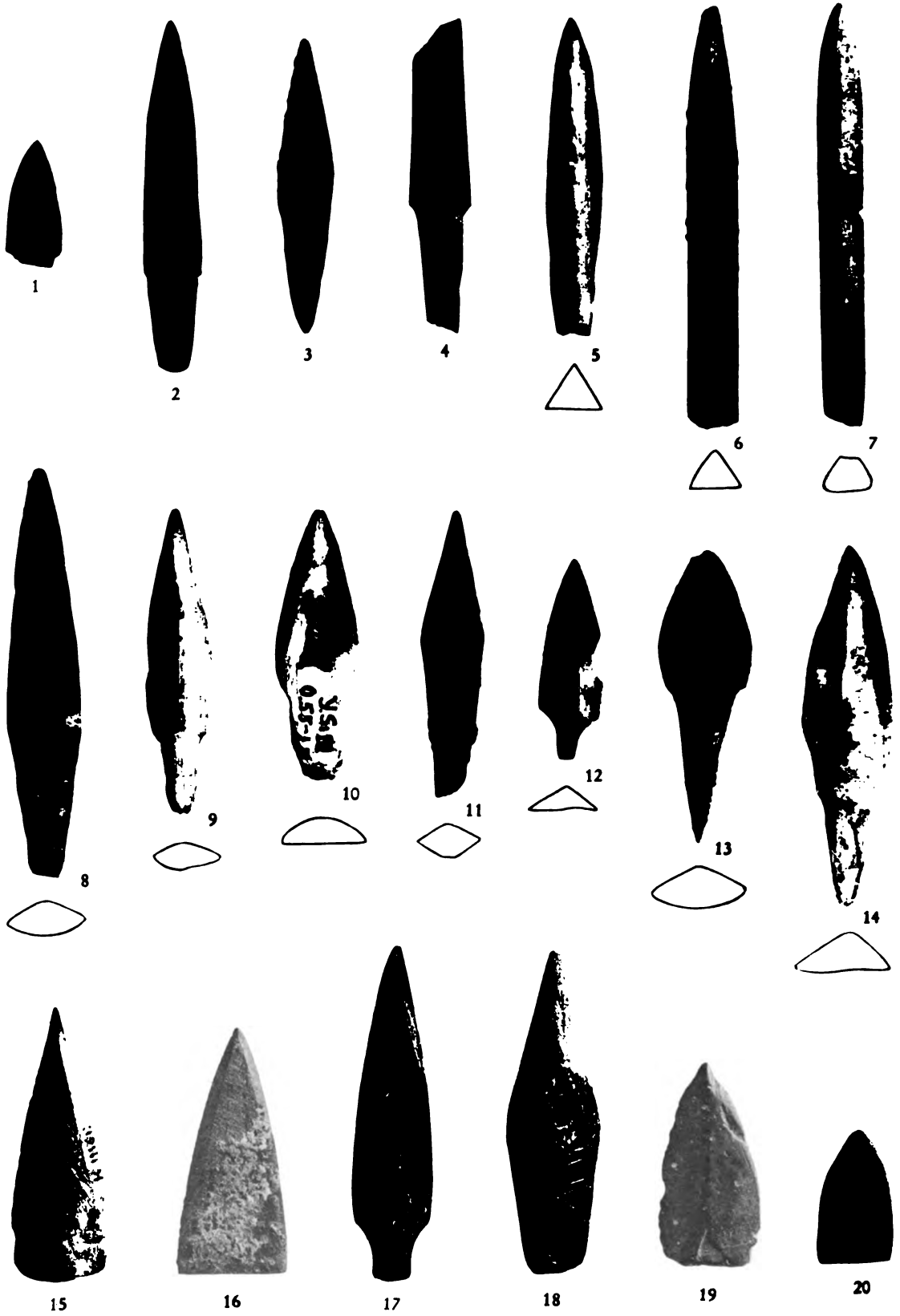
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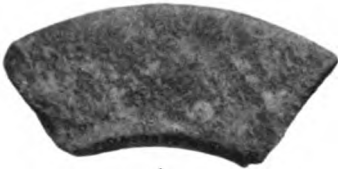


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Yang Shao Tsun. 1/1





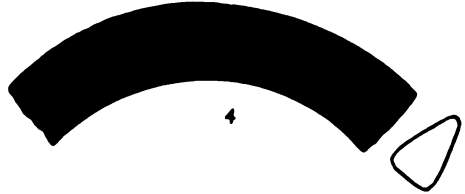
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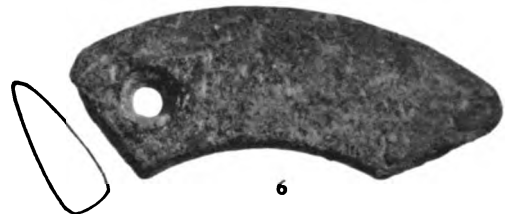
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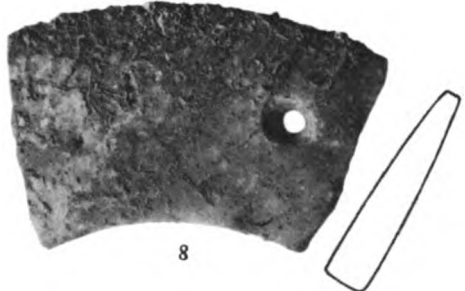
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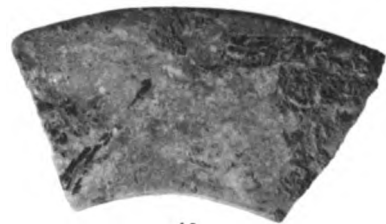
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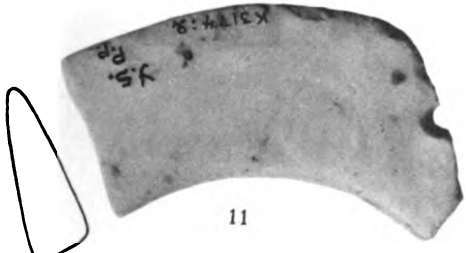
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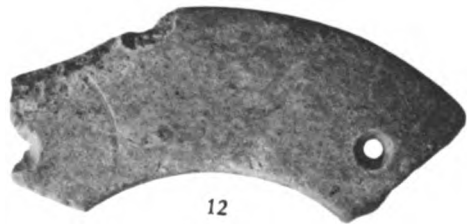
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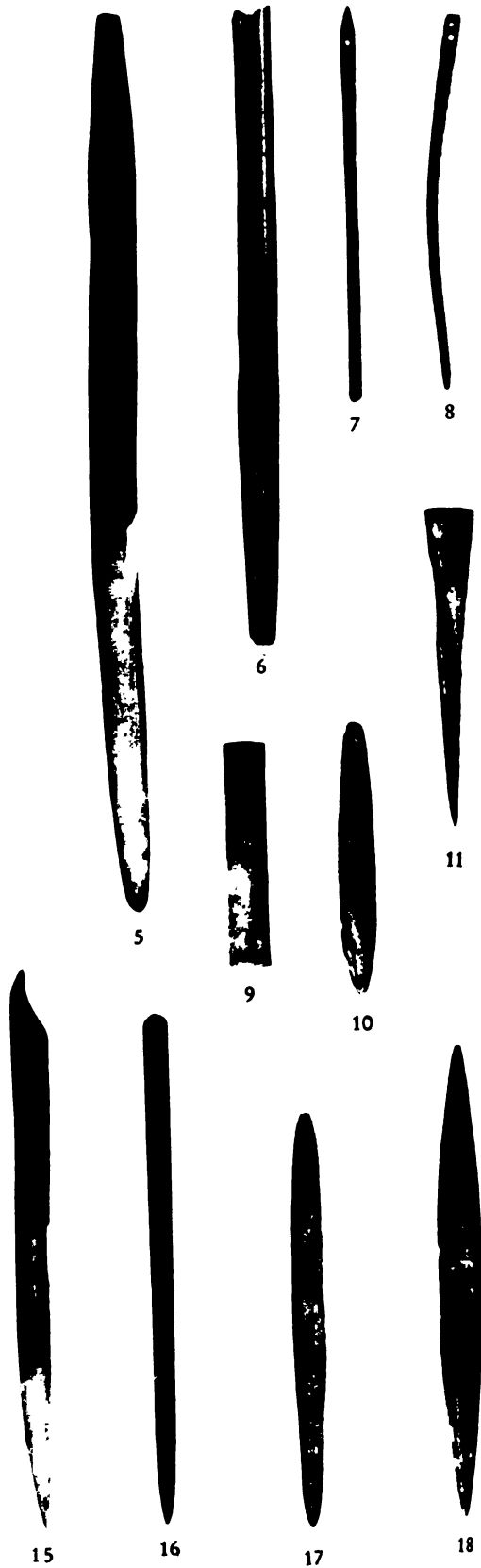
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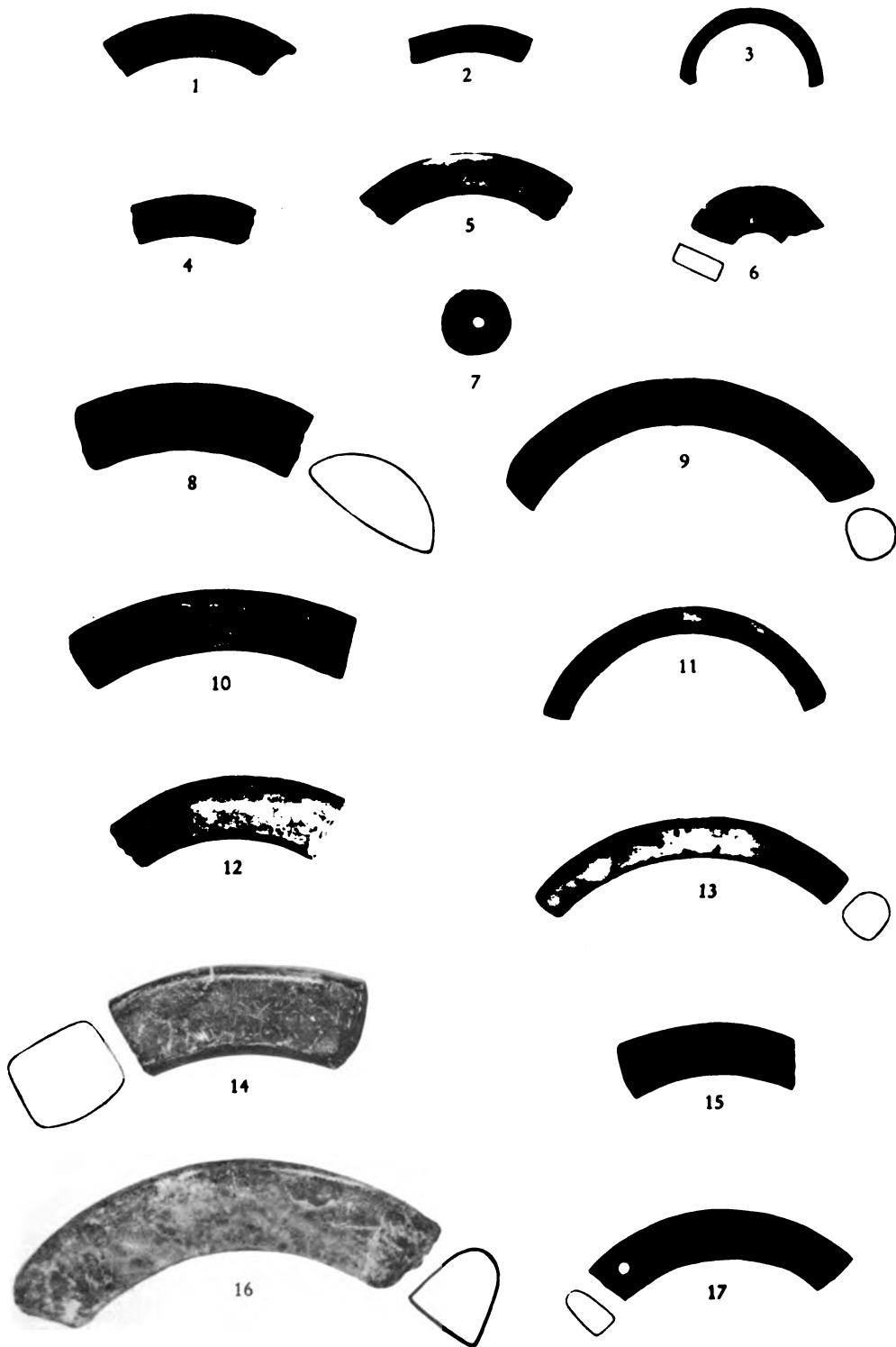


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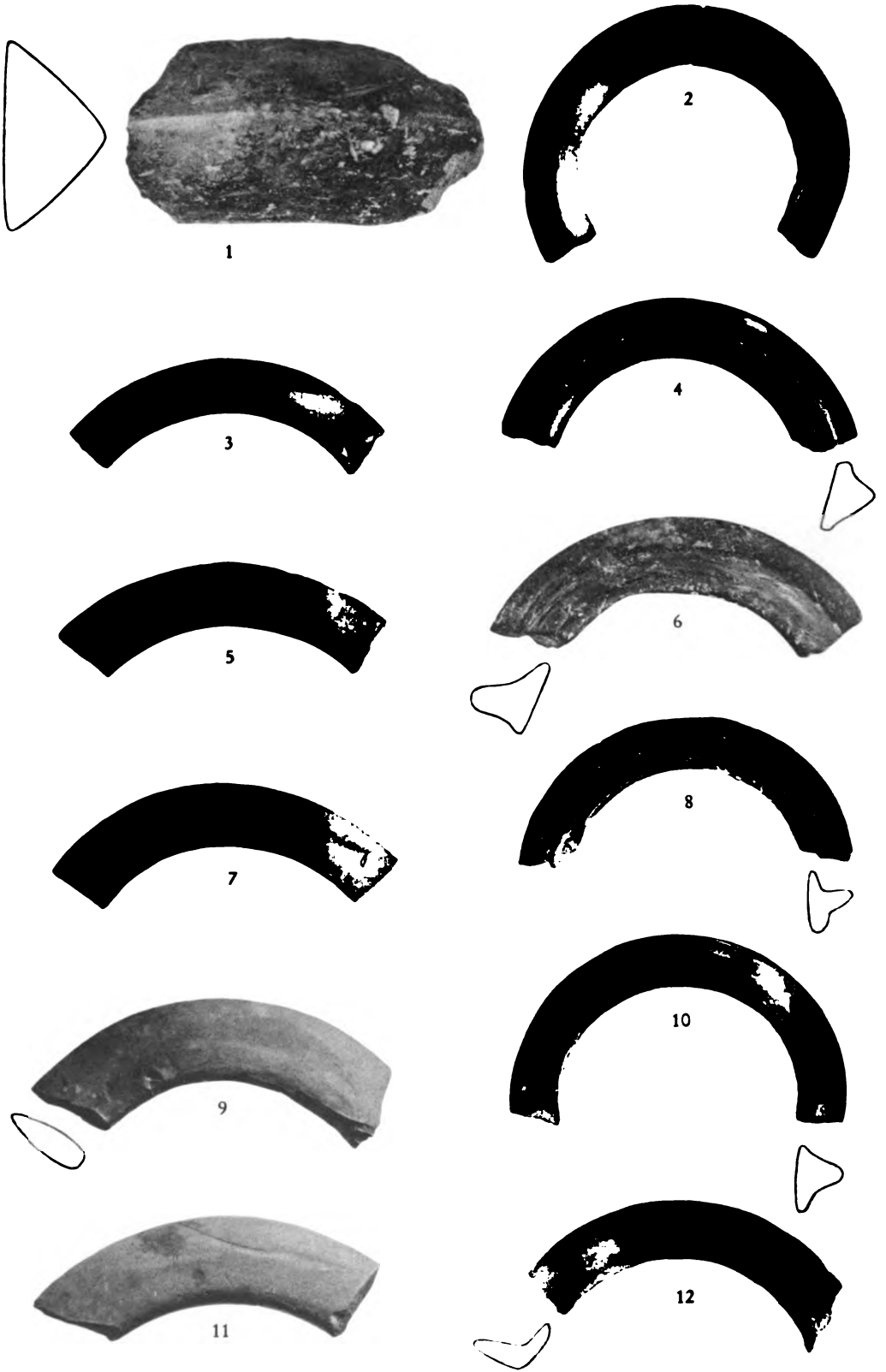


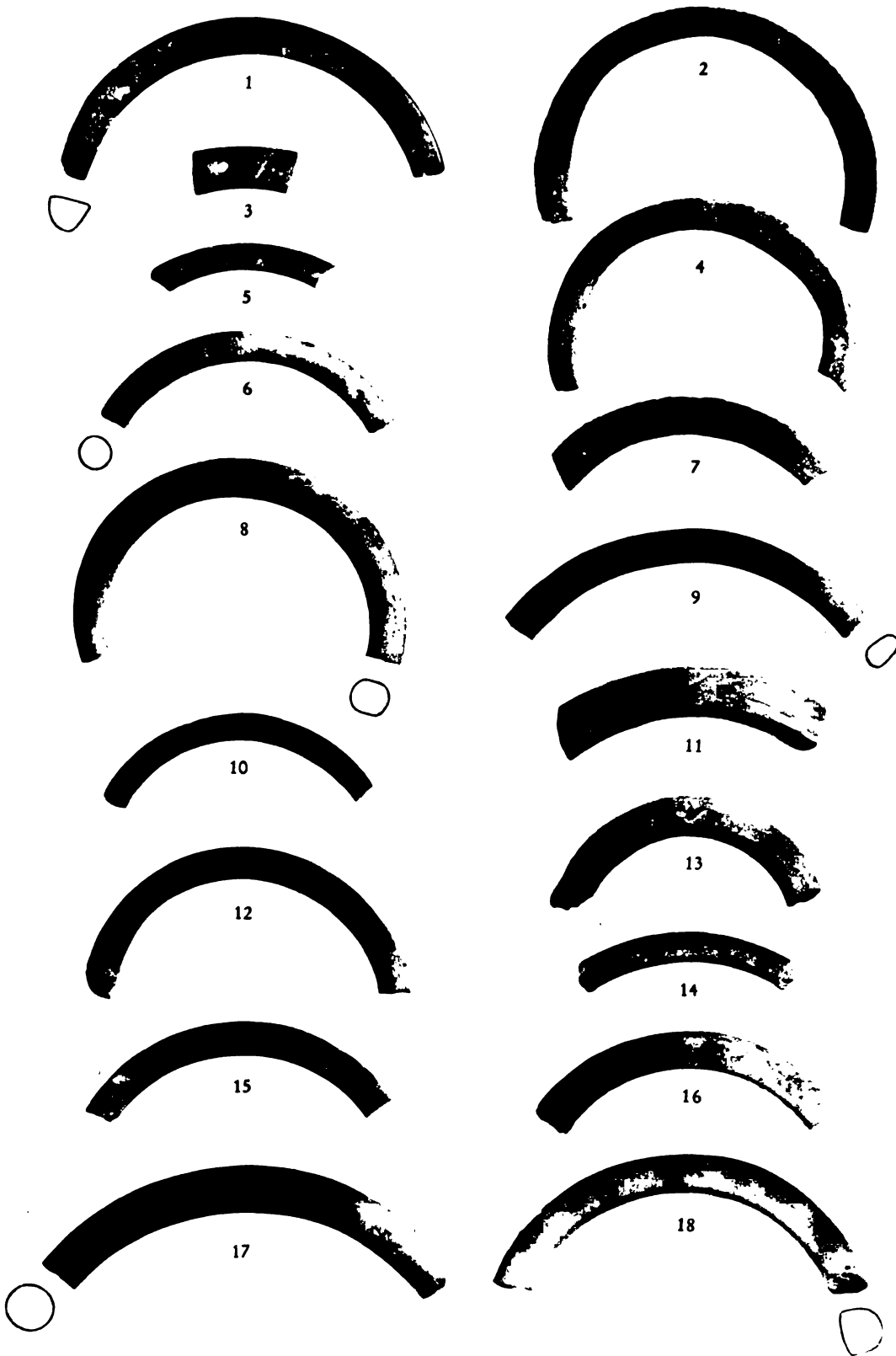


Yang Shao Tsun. 1/1

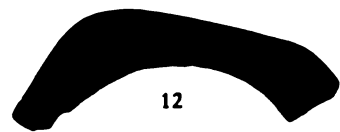
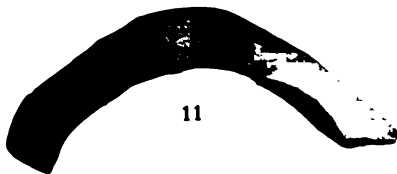
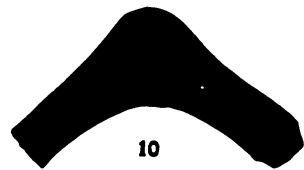
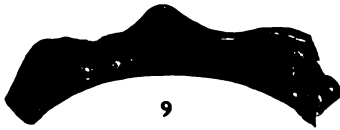
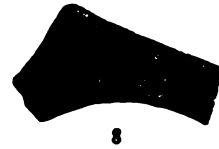


Yang Shao Tsun. 1/1





Yang Shao Tsun. 11



Yang Shao Tsun. 1/1



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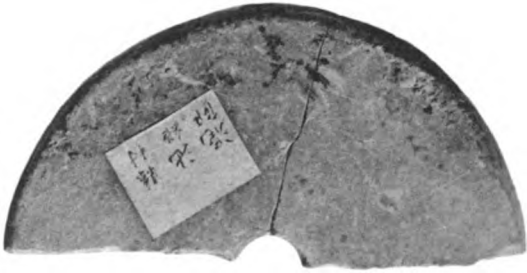
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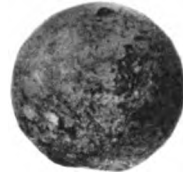




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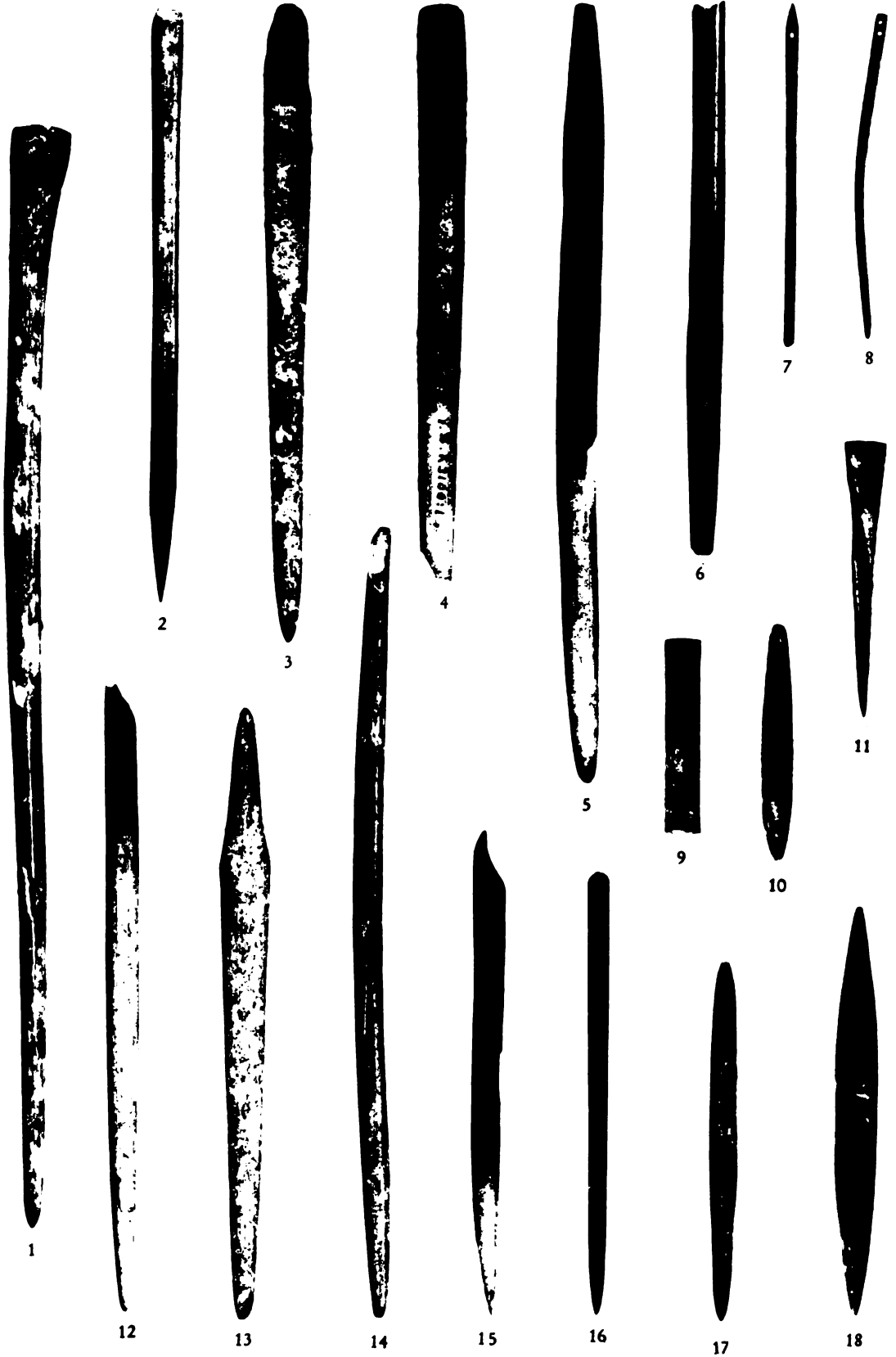


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Yang Shao Tsun. 1-6 1/4; 7-16 1/2





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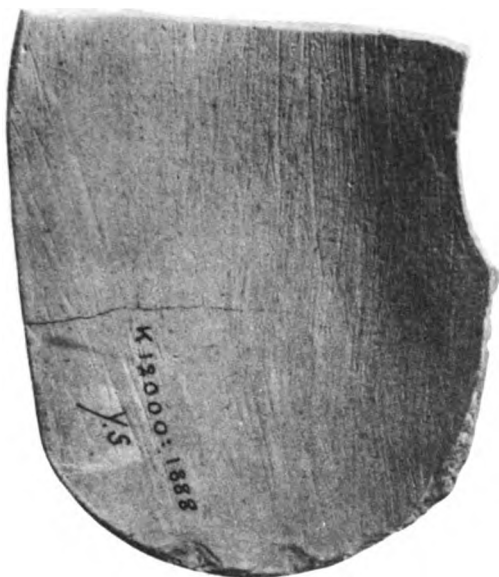
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Yang Shao Tsun. 1/1





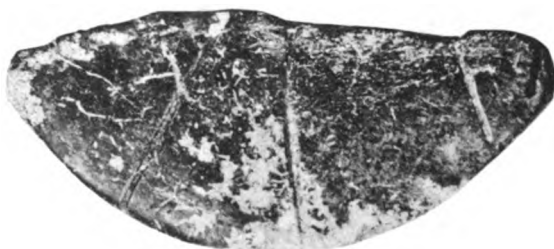
1 a



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2 a



2 b



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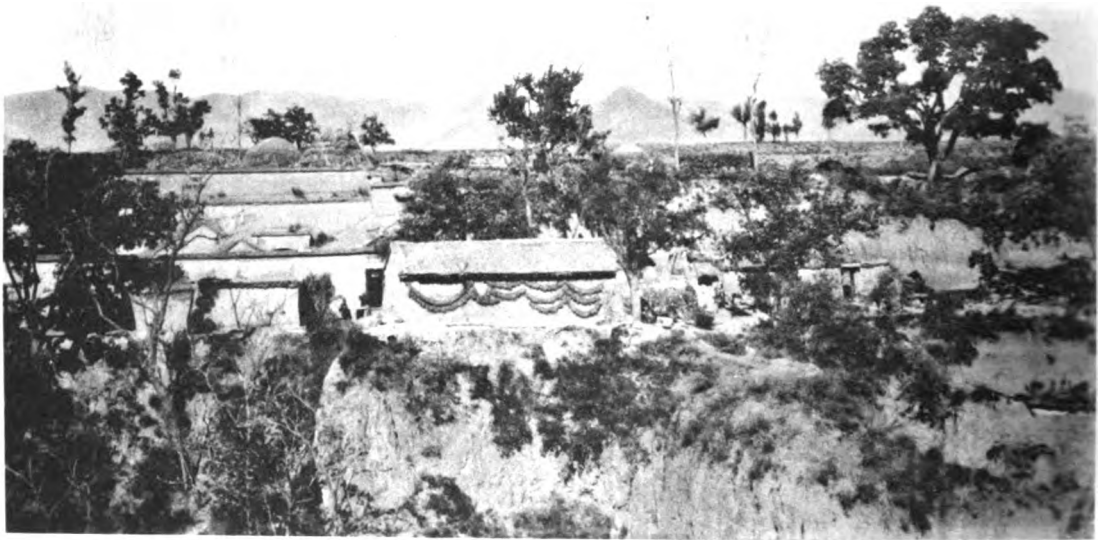
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Yang Shao Tsur



Brick houses.



Loess cave dwellings

The village Yang Shao Tsun in harvest season



Ravine topography in southern part of the Yang Shao Tsun site.

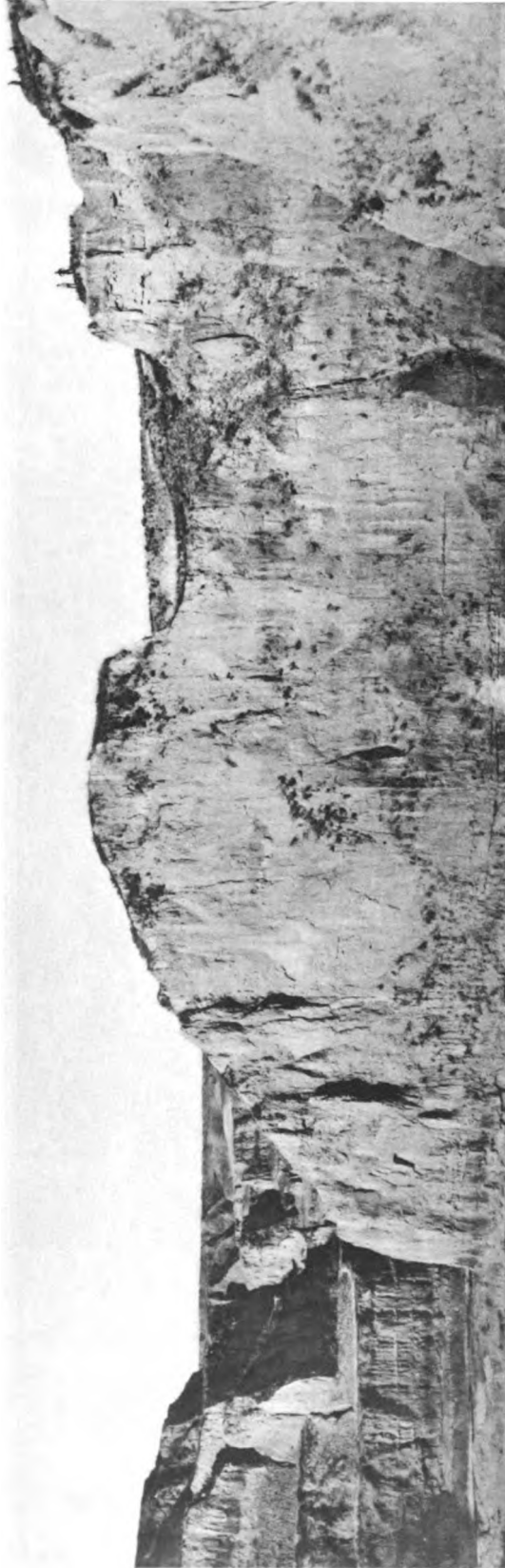


Yang Shao Tsun. Loc XIII.

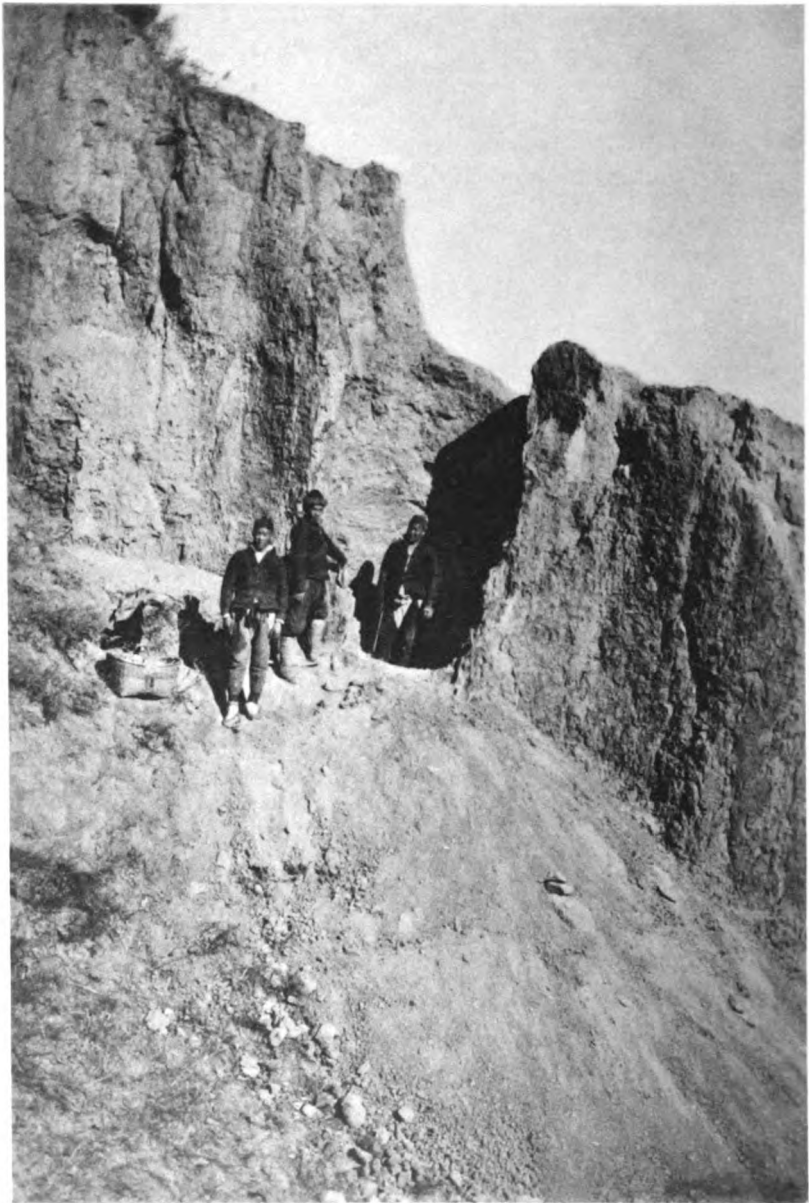
Mr Yuan standing upon an isolated patch of culture deposit.



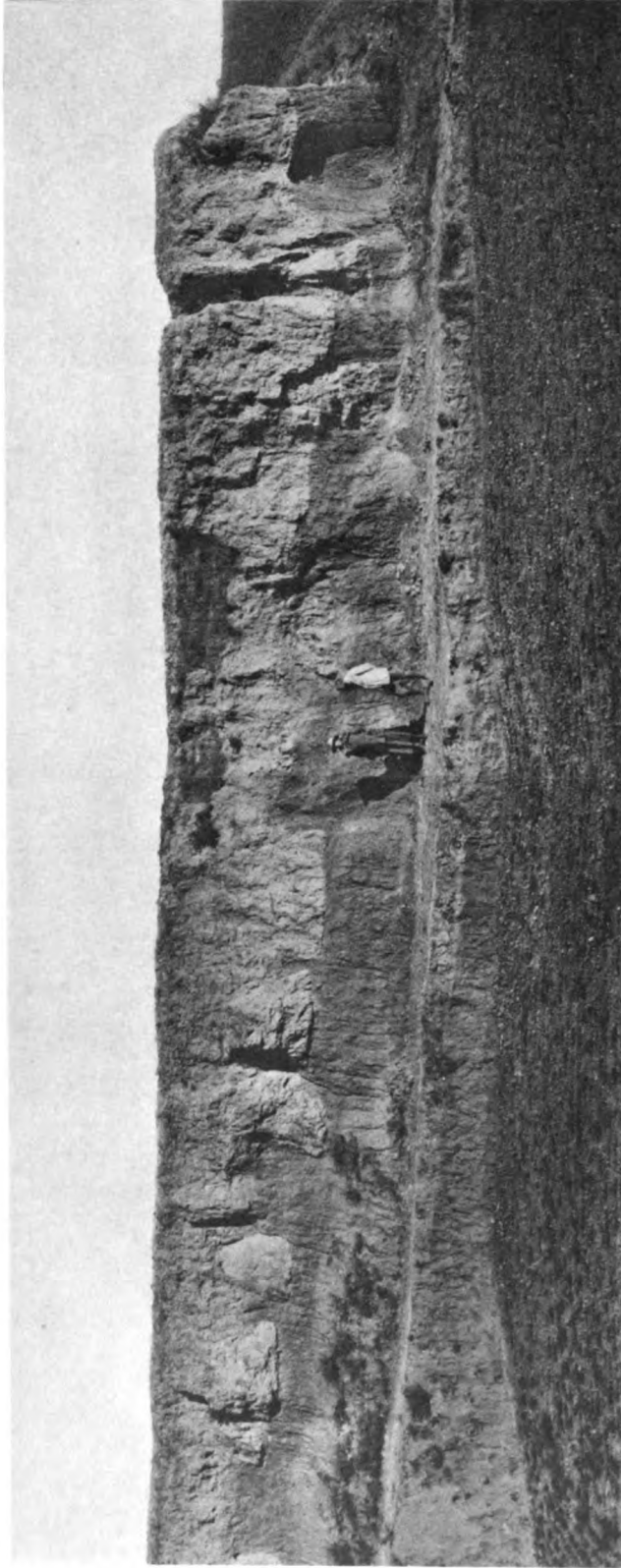
Yang Shao Tsun. Ravine topography.



Yang Shao Tsun. Loc. XIV (Castle Cliff).



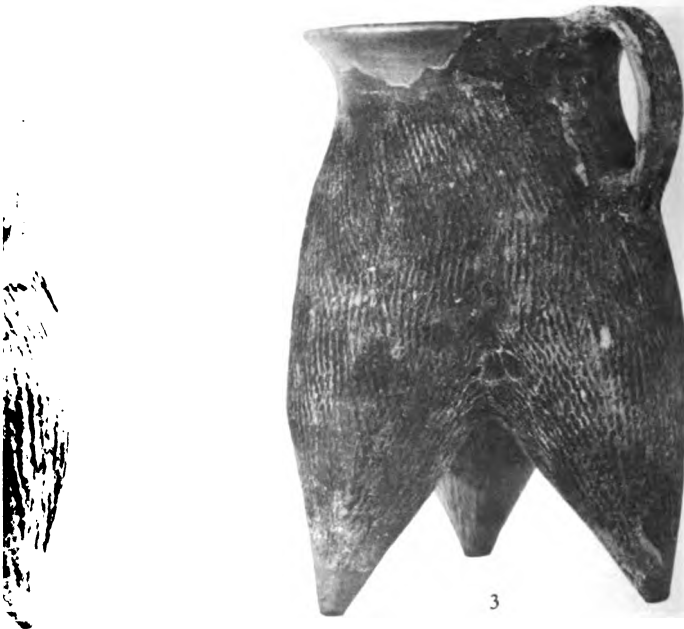
Yang Shao Tsun site. Loc. IV.
Excavation of prehistoric well.



Yang Shao Tsun. Southern part of road ravine with "pockets".



1



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Pu Chao Chai. 1/3



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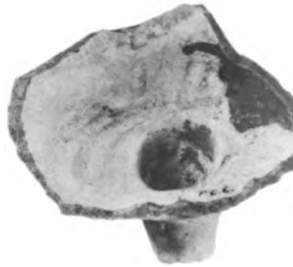
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8 a

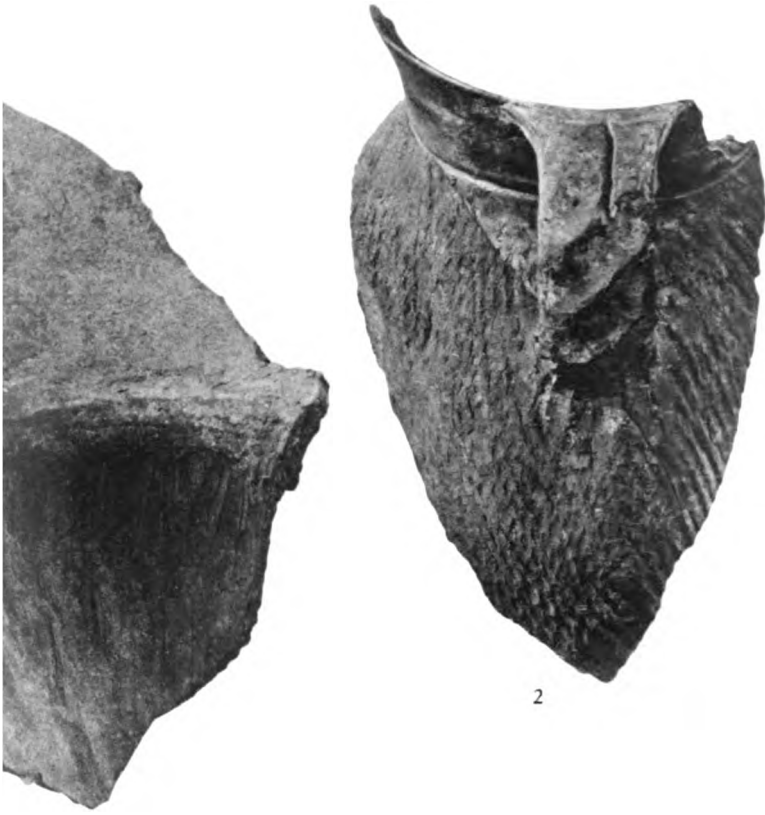


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8 b

Pu Chao Chai. 1/3



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Pu Chao Chai. 1/2



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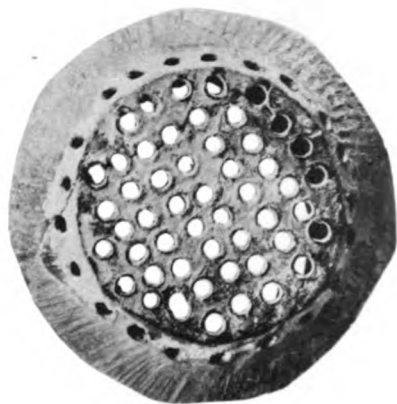


6a



6b

Pu Chao Chai. 1/2



1b



3

Pu Chao Chai. 1. 2 $\frac{1}{3}$; 3 $\frac{1}{4}$



Pu Chao Chai. 1/2



1



2



3 a



3 b



4 a



4 b



5 a



5 b



6 a



6 b



7 a



7 b

Pu Chao Chai. 1/2



1 a



1 b



2 a



2 b



3 a



3 b



4



5 a



5 b



6



7 a



7 b

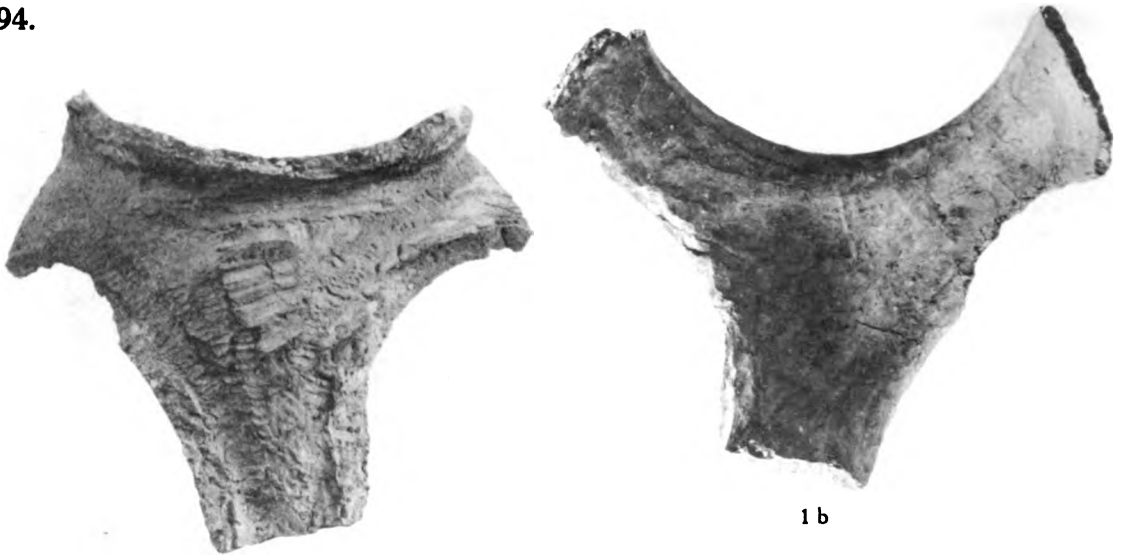


8 a



8 b

Pu Chao Chai. 1/2



1 a

1 b



2



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h

3

Pu Chao Chai. $\frac{1}{3}$



1



2



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6

Pu Chao Chai. 1/2



1



2

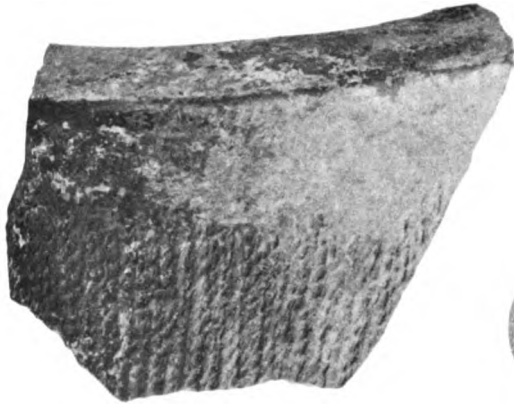


3



4

Pu Chao Chai. 13



1



3

Pu Cha



1



2



3



4



1 a



1 b



1 c



2 a



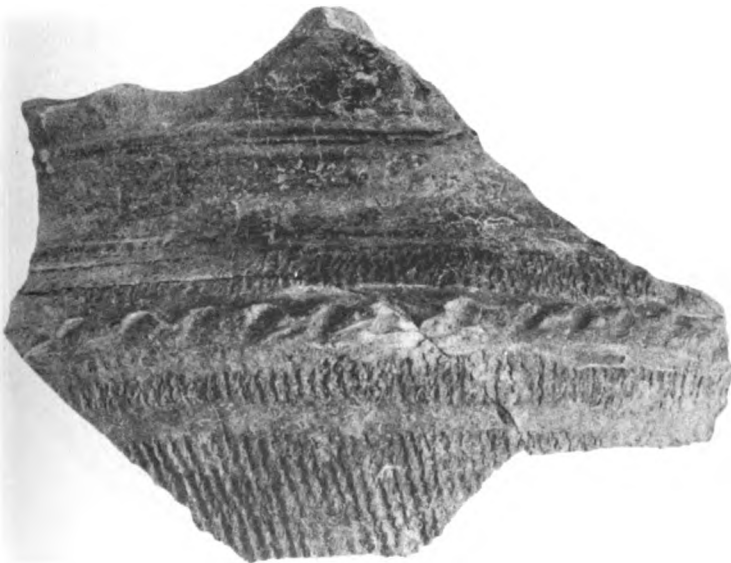
2 b



2 c



4

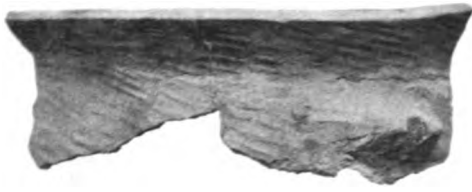


5 a



5 b

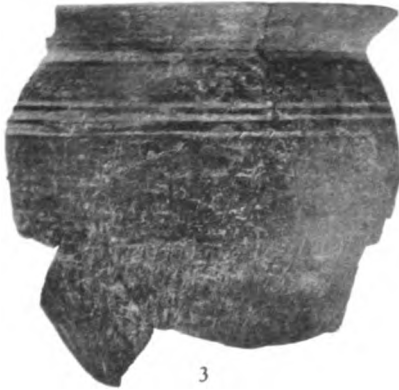
Pu Chao Chai. 1/2



1



2



3



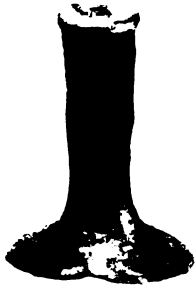
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6



1



3



4



6 a



6 b



7 a



8



9



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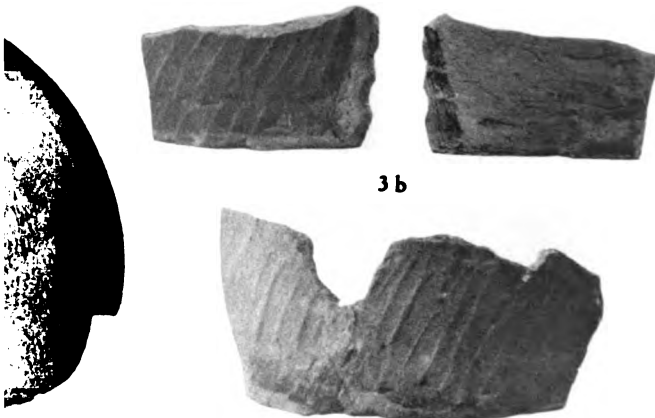
Pu Chao Chai. 1/2



2 a



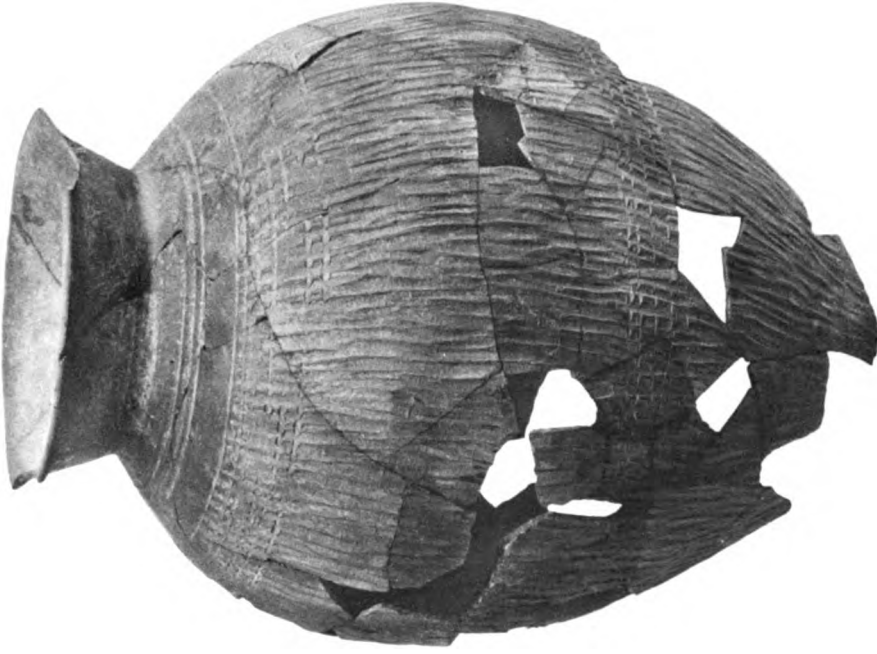
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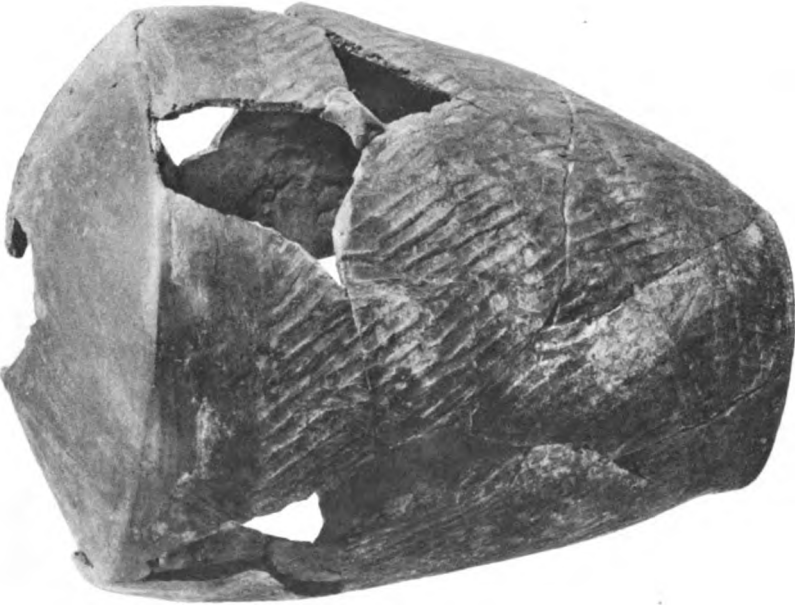
3 b

3 c

Pu Chao Chai. 1/3

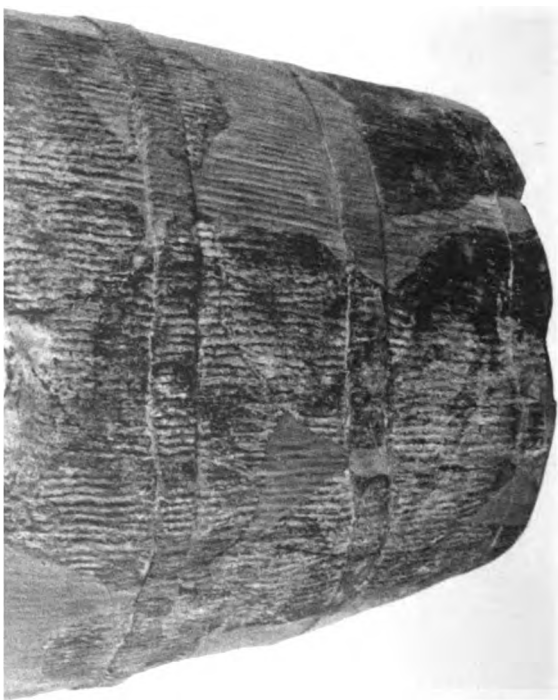


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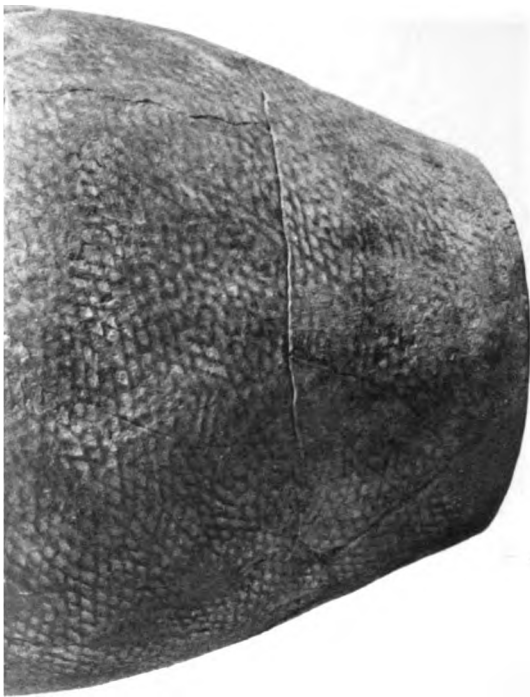


1

Pu Chao Chai. $\frac{1}{8}$

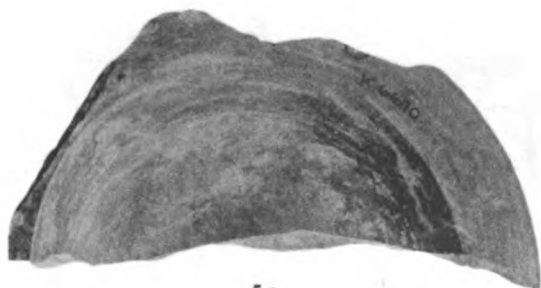


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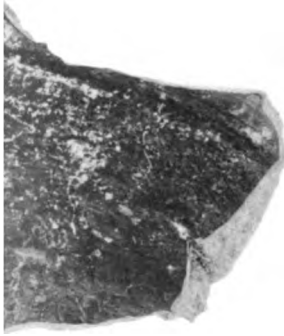


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Pu Chao Chai. $\frac{1}{3}$



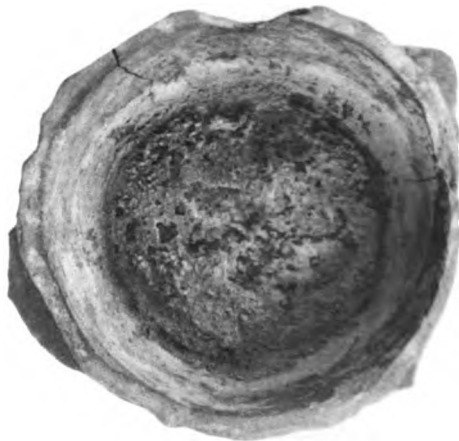
Pu Chao Chai. 1/2



2



3



4 b

Pu Chao Chai. 1/2



1



2



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4



1



2



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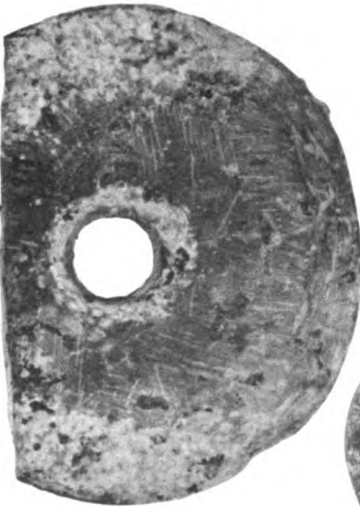
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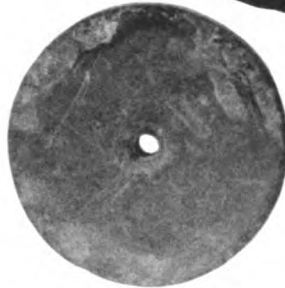
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7



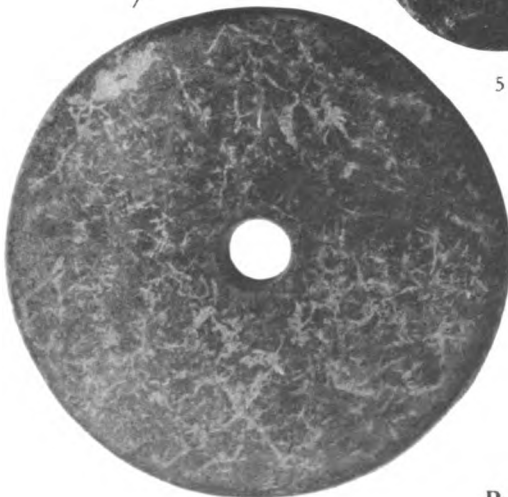
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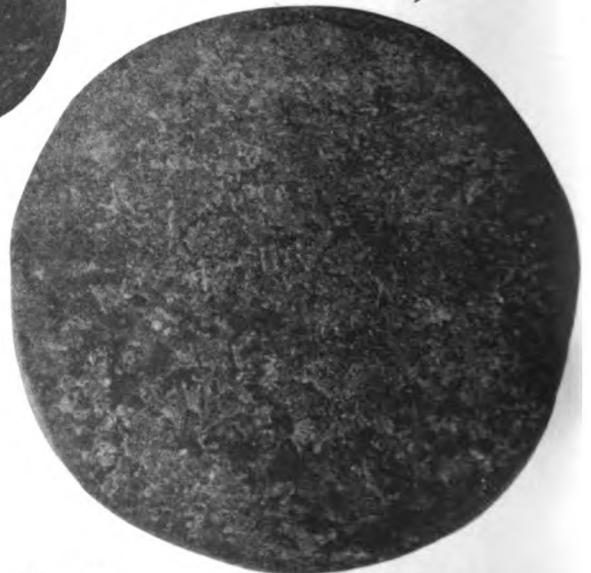
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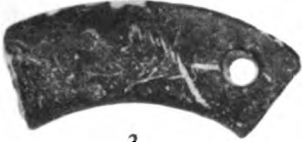


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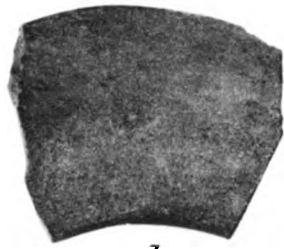




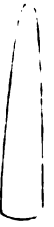
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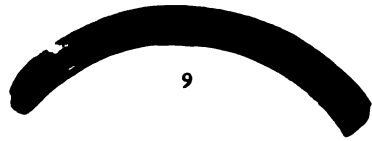
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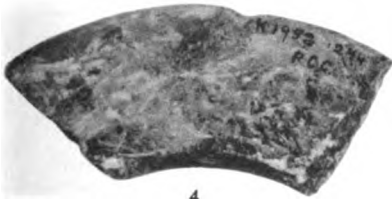
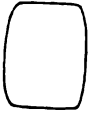
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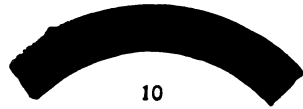
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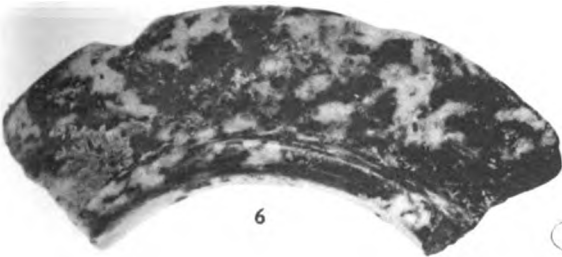
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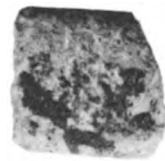
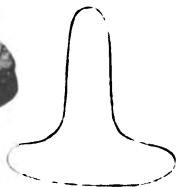
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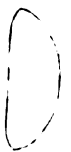
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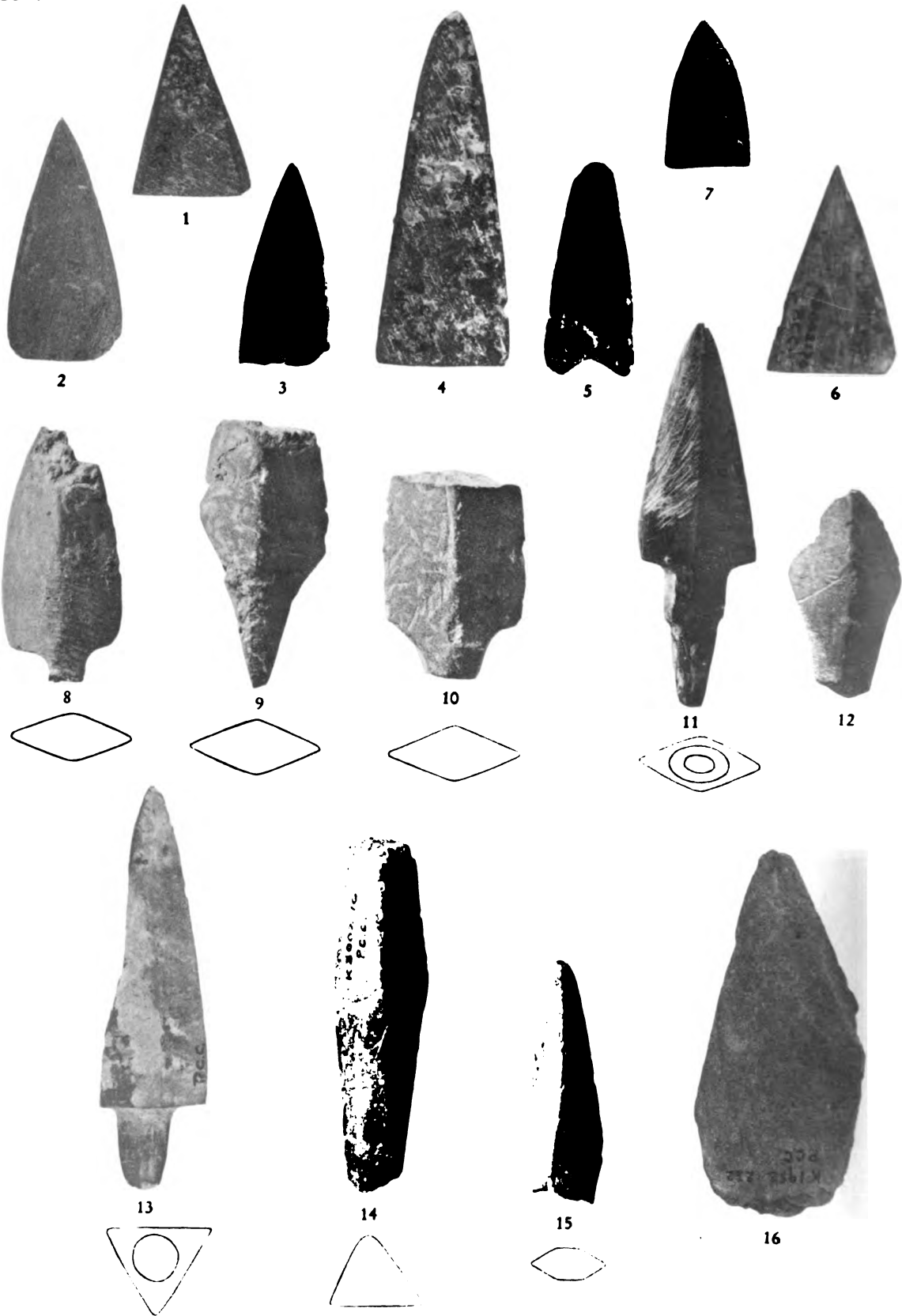
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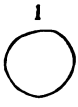
14



Pu Chao Chai. 1/1



Pu Chao Chai. 1/1



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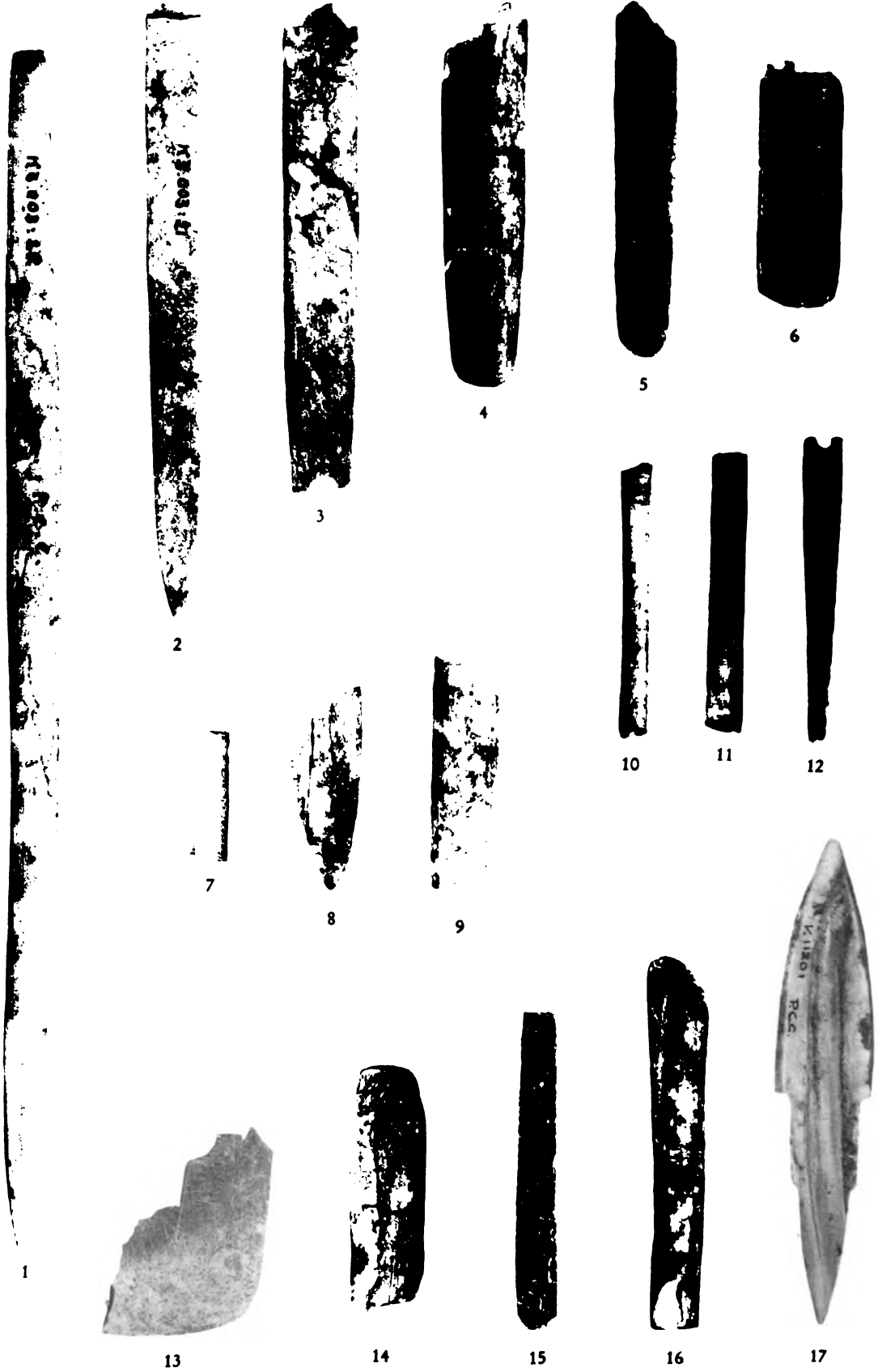
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Pu Chao Chai. 1/1







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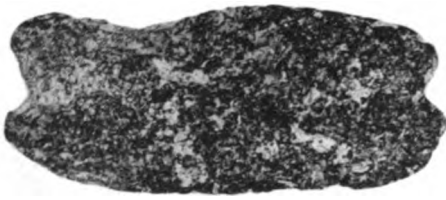
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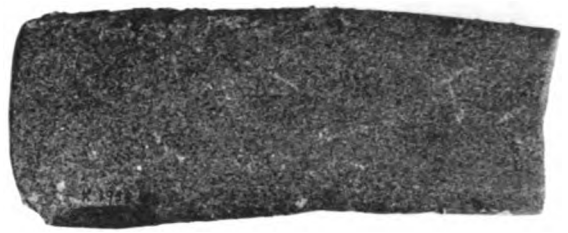
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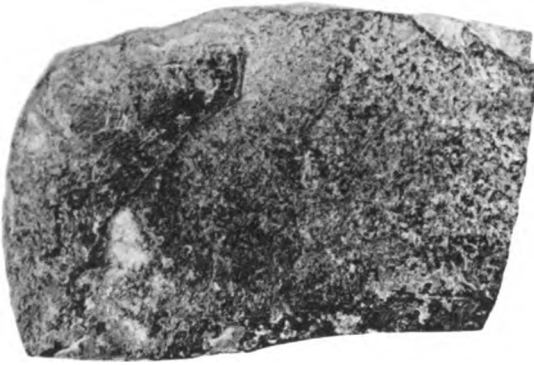
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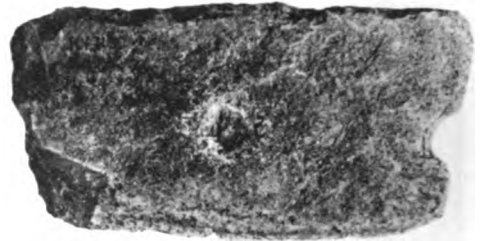
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6



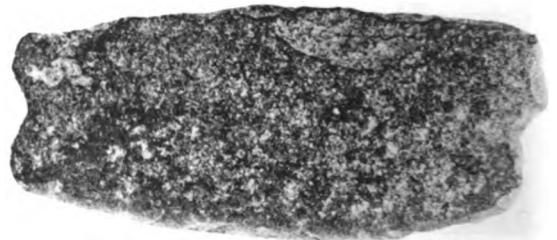
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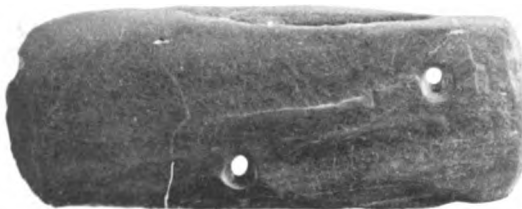
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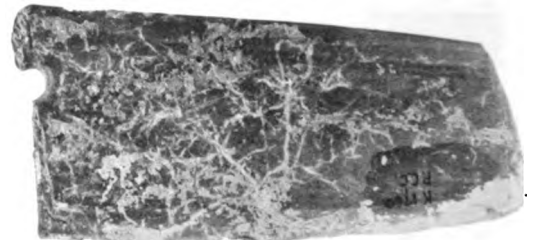
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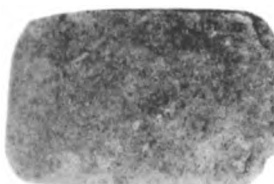
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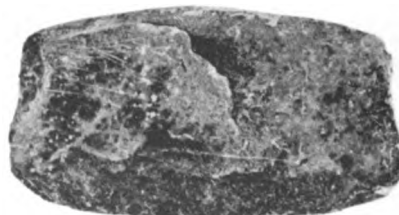
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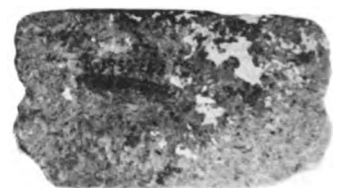
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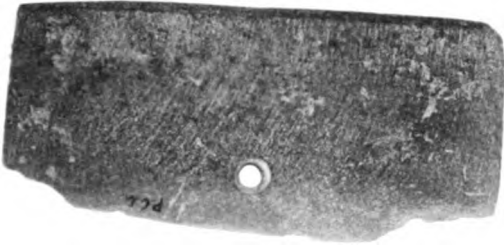
Pu Chao Chai. 2/3



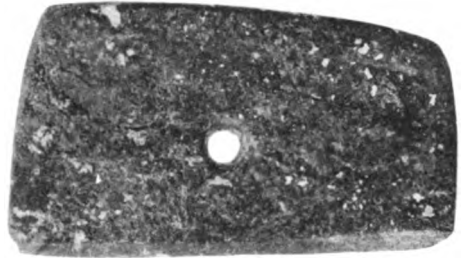
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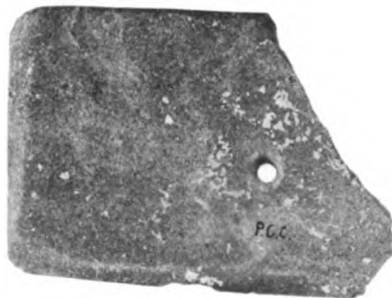
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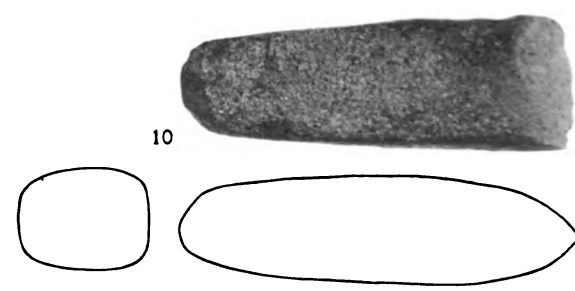
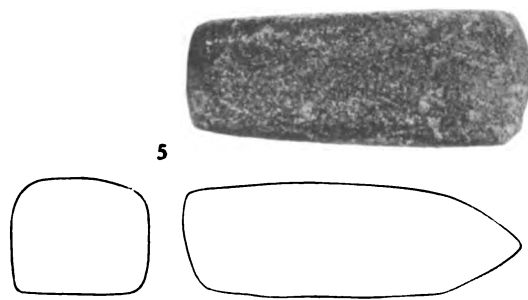
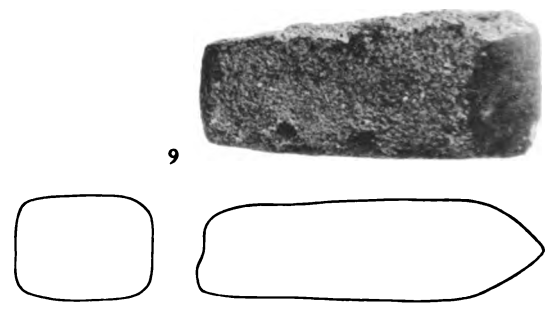
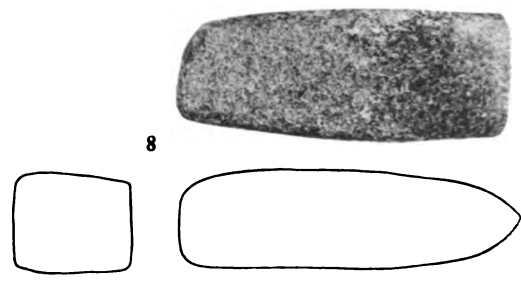
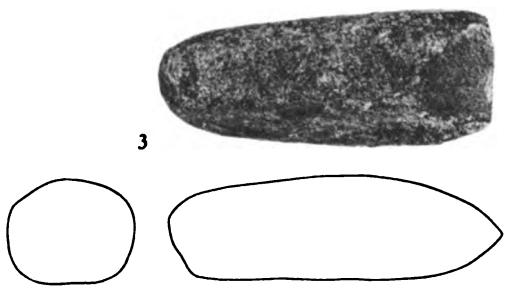
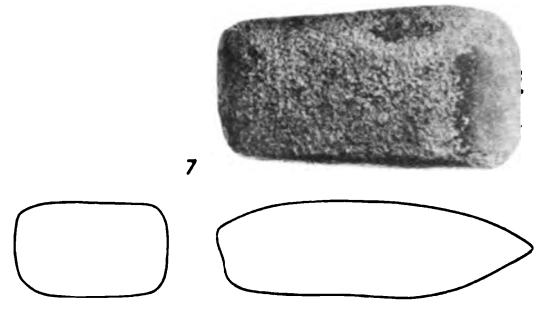
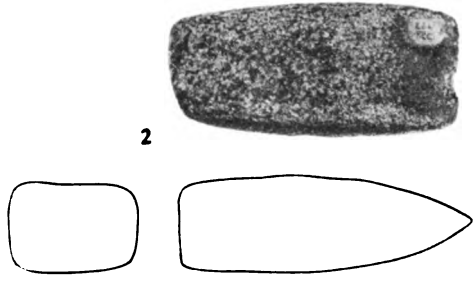
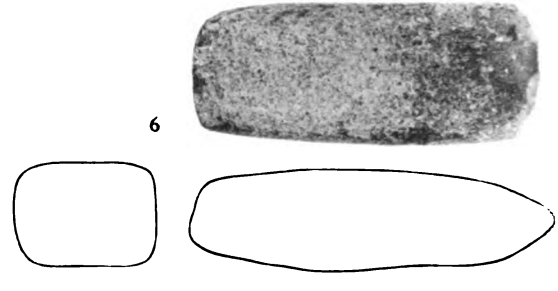


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Pu Chao Chai. 2/3





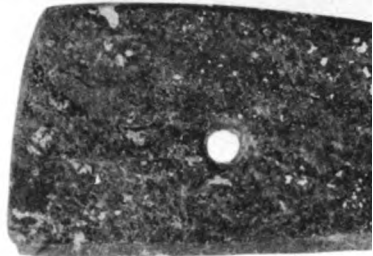
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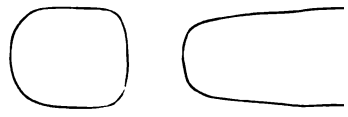
Pu Chao Chai. 2/3



1



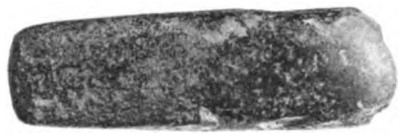
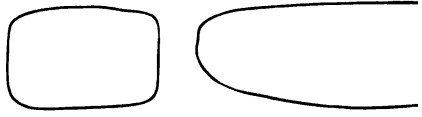
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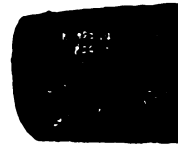
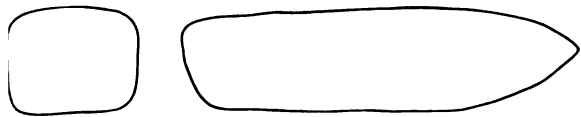
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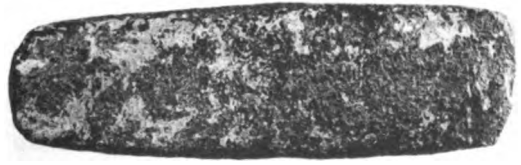
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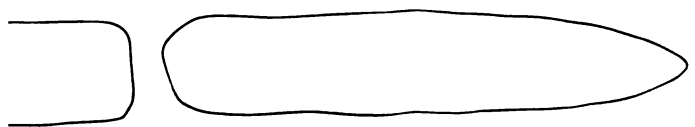
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4

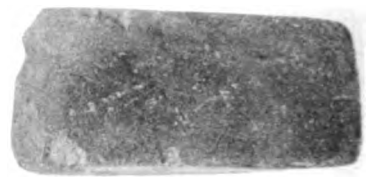


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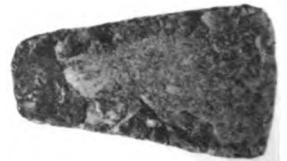
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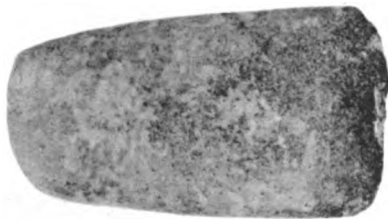
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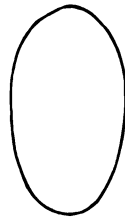
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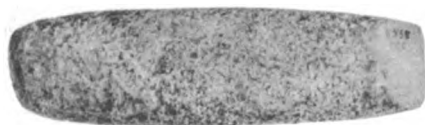
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Pu Chao Chai. 1/2



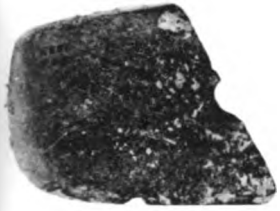
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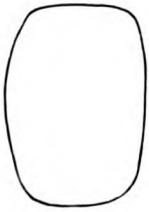
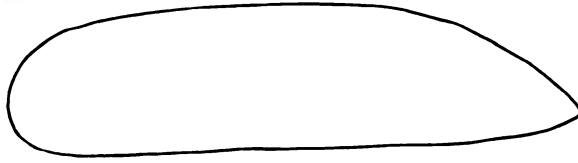
Pu Chao Chai. 1/2



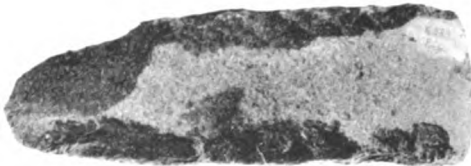
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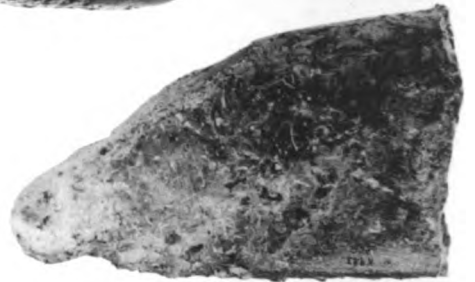
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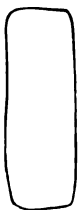
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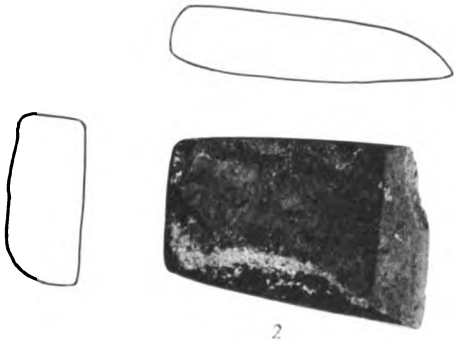
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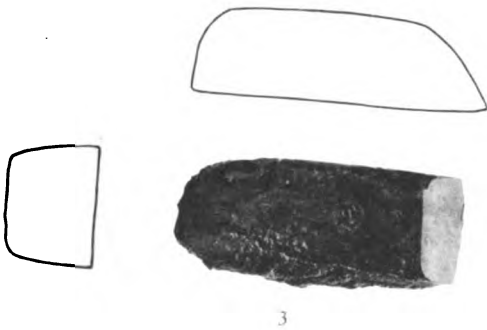
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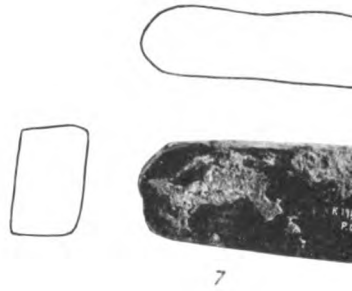
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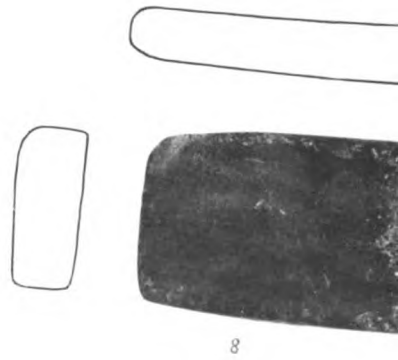
3



7



4



8



1 a



1 b



2 a



2 b



3 a



3 b



4 a



4 b



5 a



5 b



1 a



1 b



2 a



2 b



3 a



3 b



4 a



4 b



5



Pu Chao Chai. 1/1



1 a



1 b



2 a



2 b



3 a



3 b



4 a



4 b



5 a



5 b



6 a



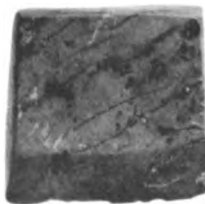
6 b



7 a



7 b



8 a



8 b



9 a



9 b

Pu Chao Chai. 1/1



1



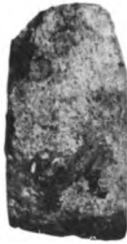
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3



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7

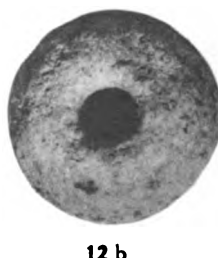


8



9

Ho Yin. 1/2





1



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4



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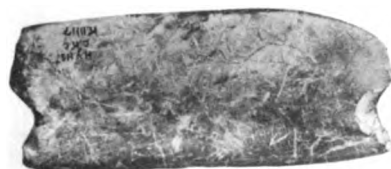
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11



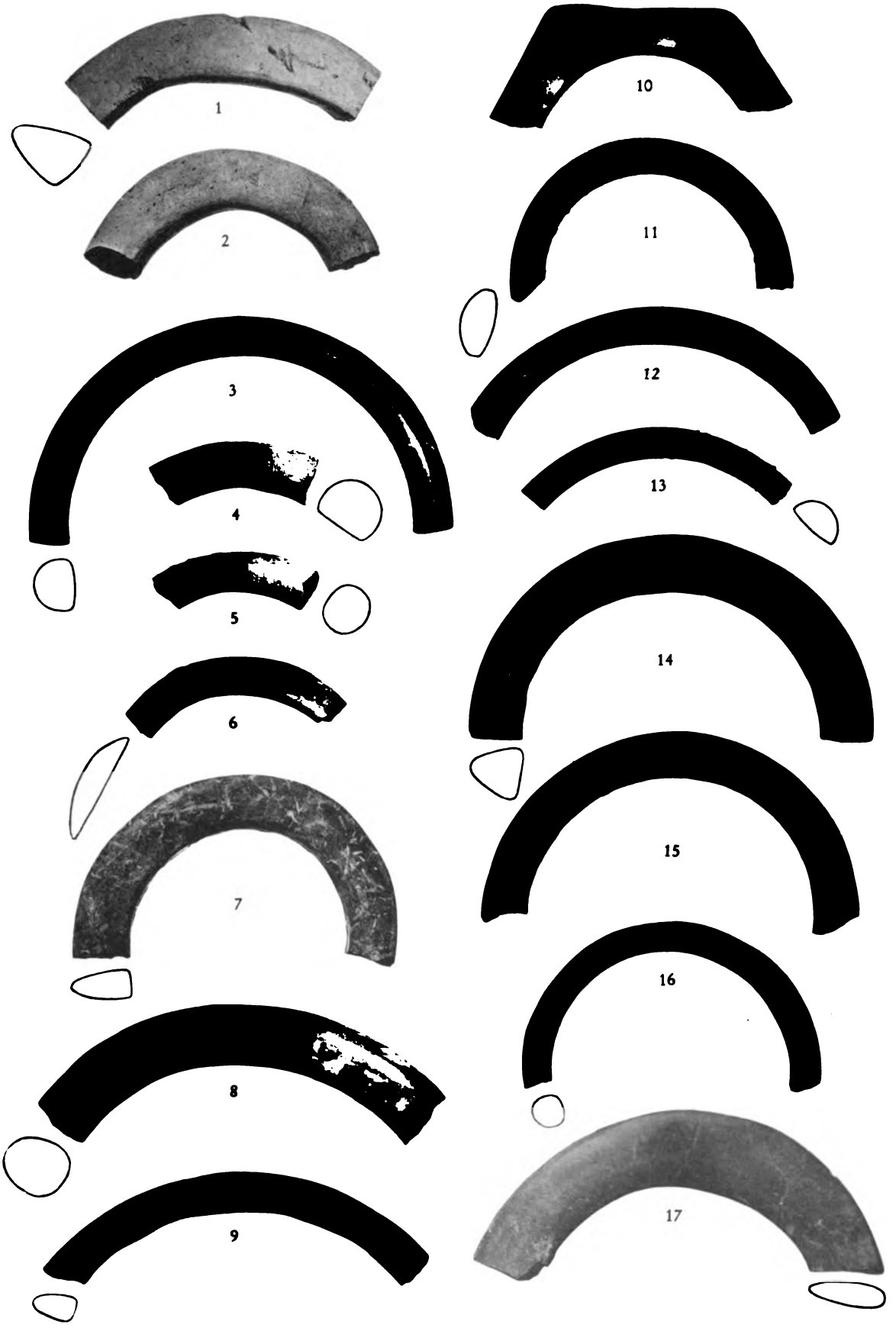
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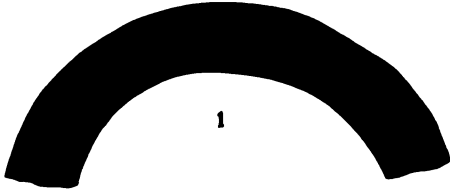


13

Ho Yin. 8 $\frac{1}{4}$; all the rest $\frac{1}{2}$







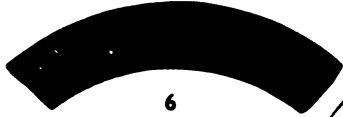
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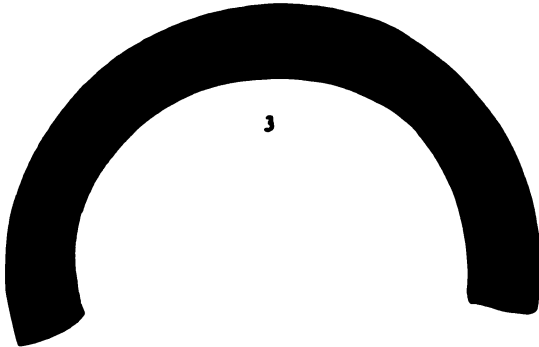
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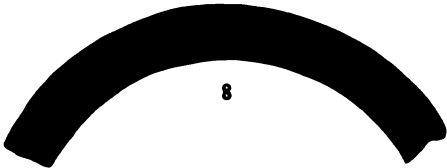
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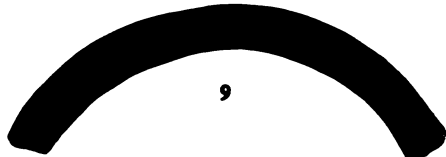
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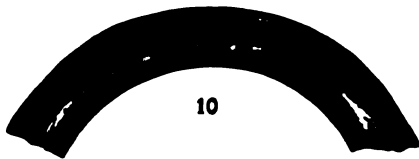
8



9



4



10



Ho Yin. 1/1



1 a



1 b



2



3



4



5



6



7



8



9 a



9 b

Ho Yin. $\frac{1}{3}$



1



2



3



4



5

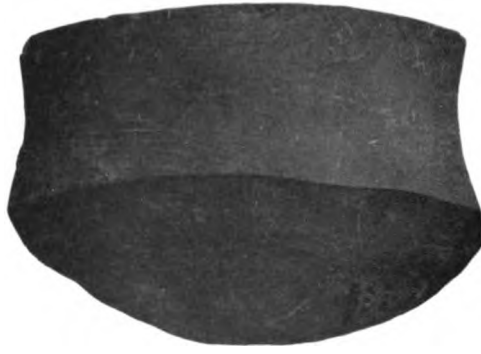


6

Ho Yin. 1. 3-6 $\frac{2}{9}$; 2 $\frac{1}{3}$



1



2



3



4



6



8

Ho Yin. 1/2



1



2



3



4



5

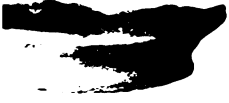
Ho Yin. 1/2



1



2



3



4



5



6



7

Ho Yin. 1. 3. 4. 5 $\frac{1}{2}$; 2. 6, 7 $\frac{1}{1}$



1



2



3



4



5

Ho Yin. 1-4 $\frac{2}{9}$; 5 $\frac{1}{6}$



1



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3



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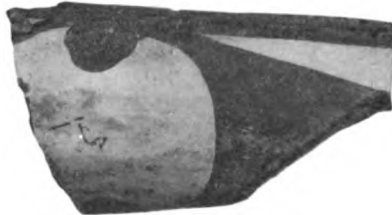
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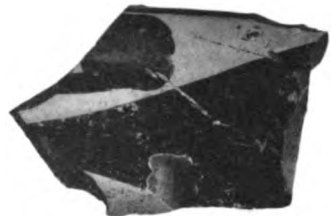
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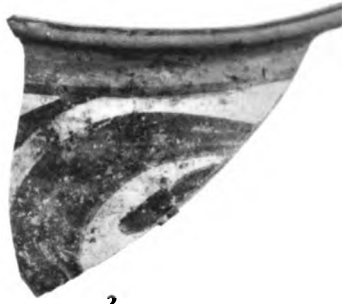


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Ho Yin. 1/2



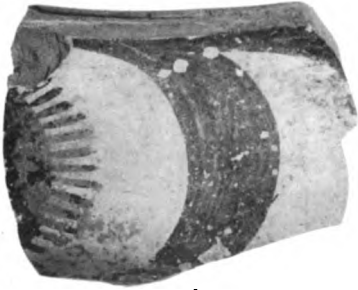
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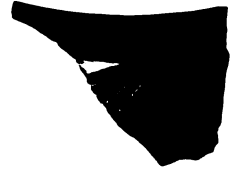
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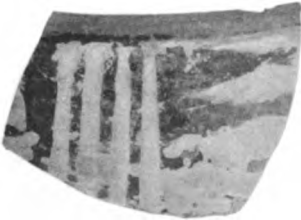
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Ho Yin. 1/2



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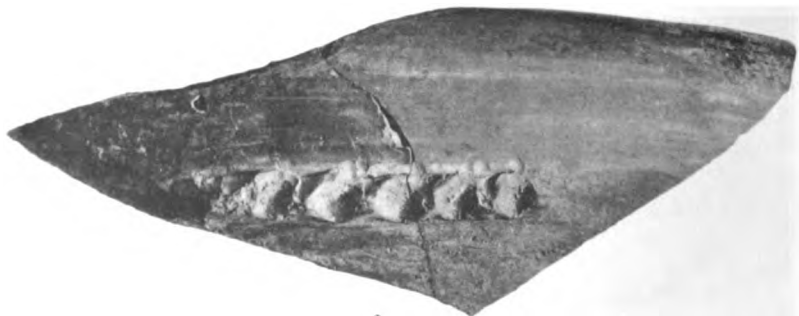
Ho Yin. 1/2



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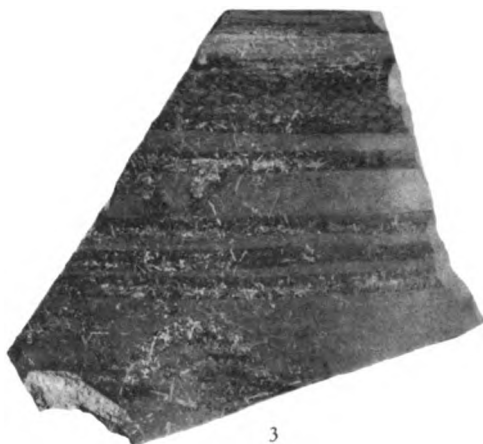
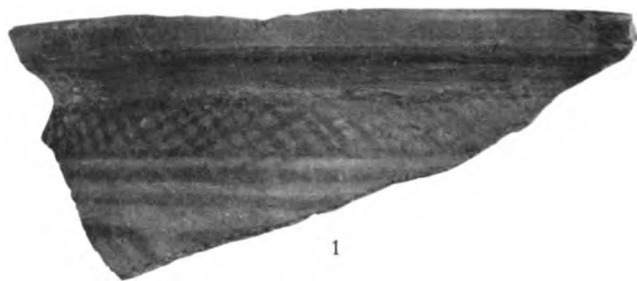


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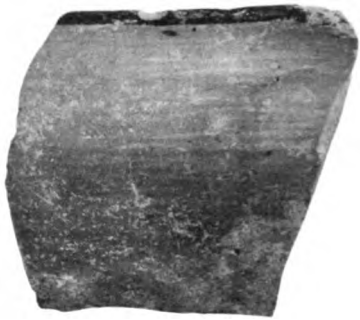
Ho Yin. 1/2



Ho Yin. 1/2



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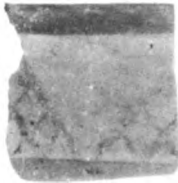
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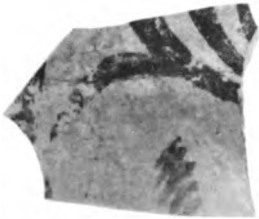
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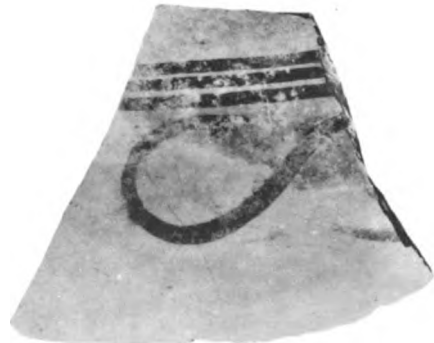
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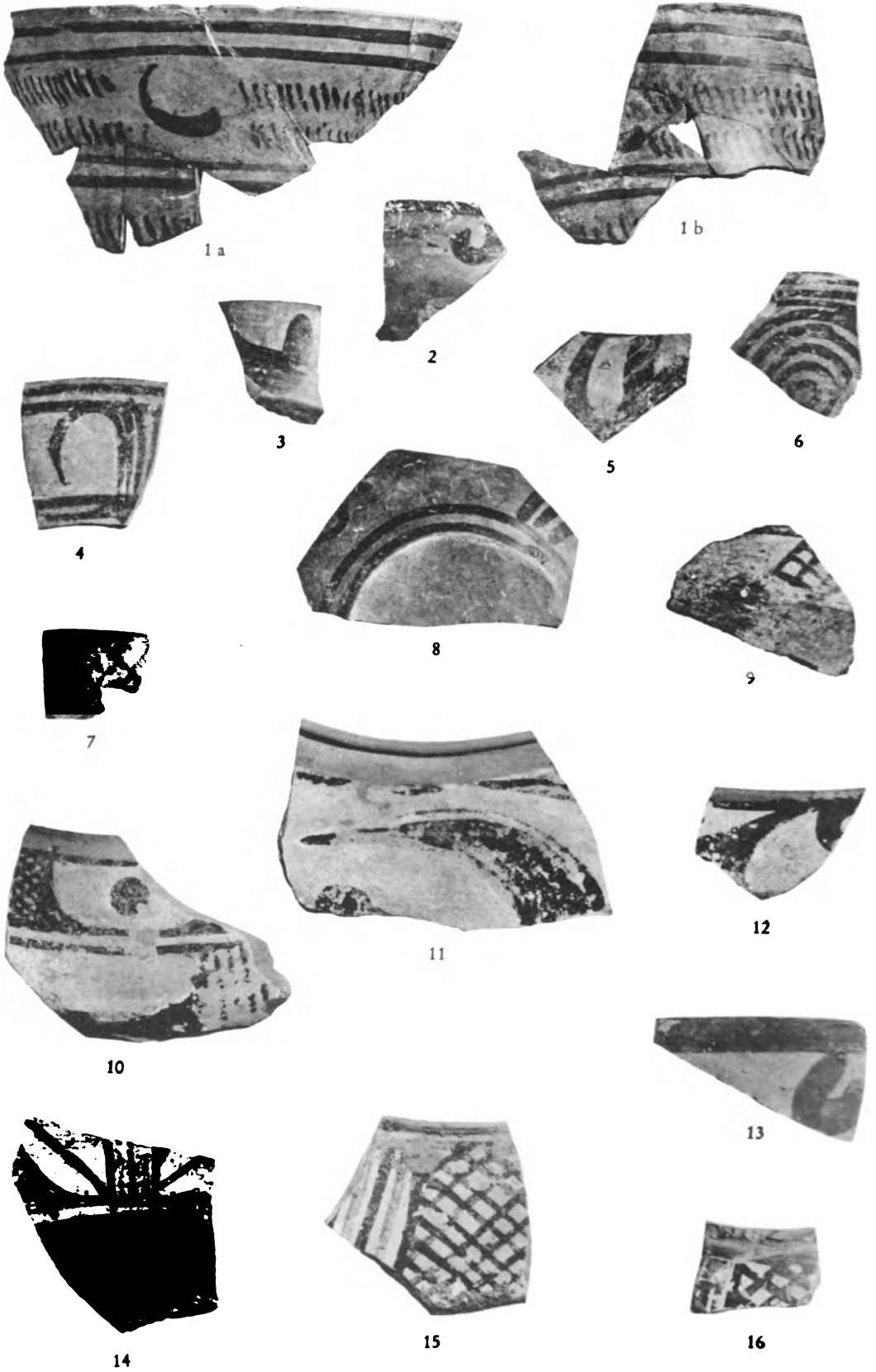


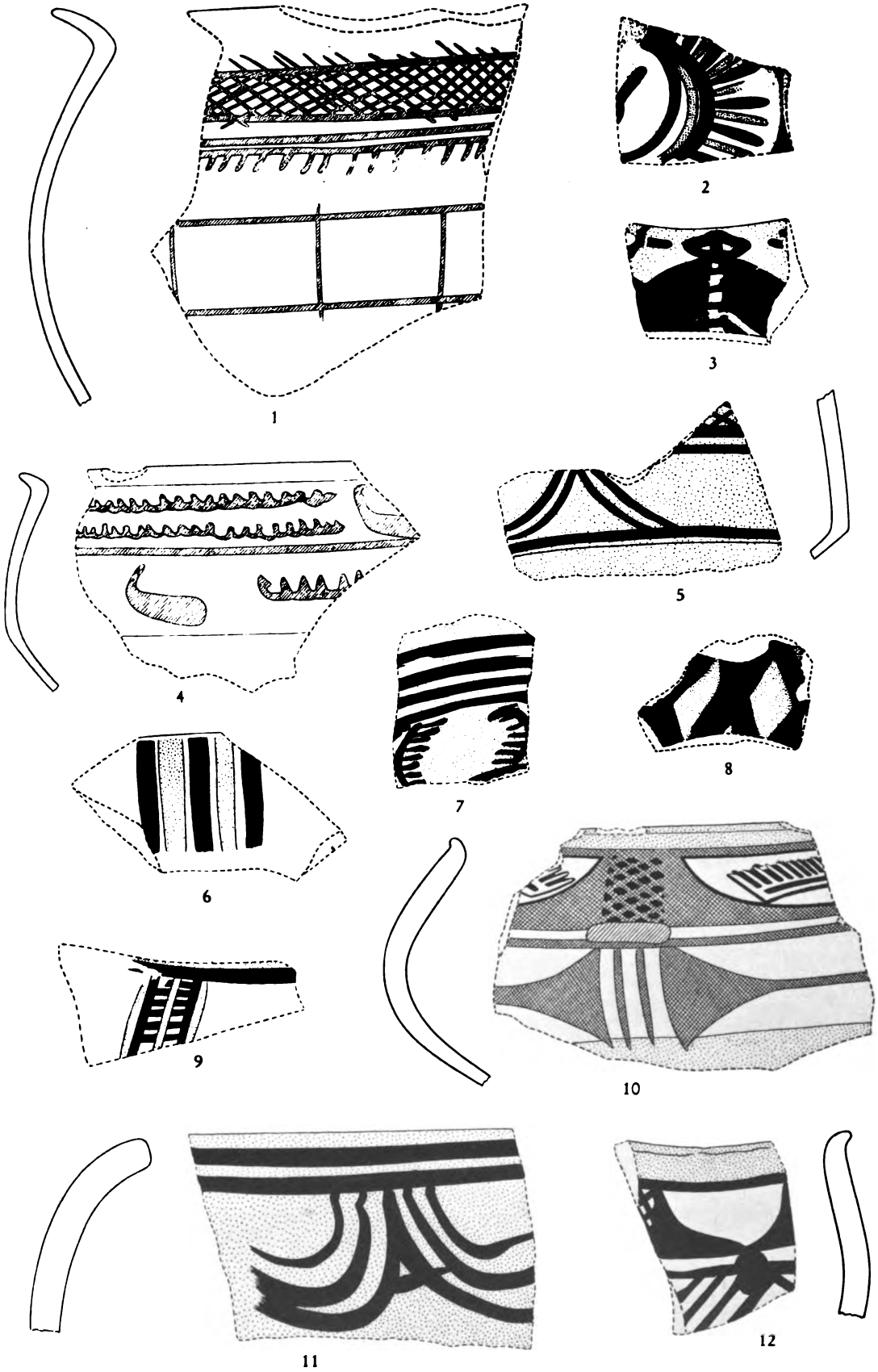
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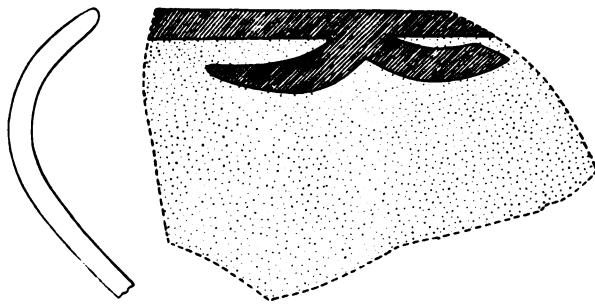


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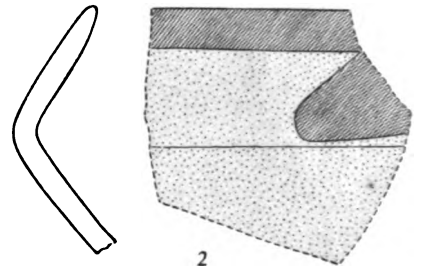
Ho Yin. 1/2



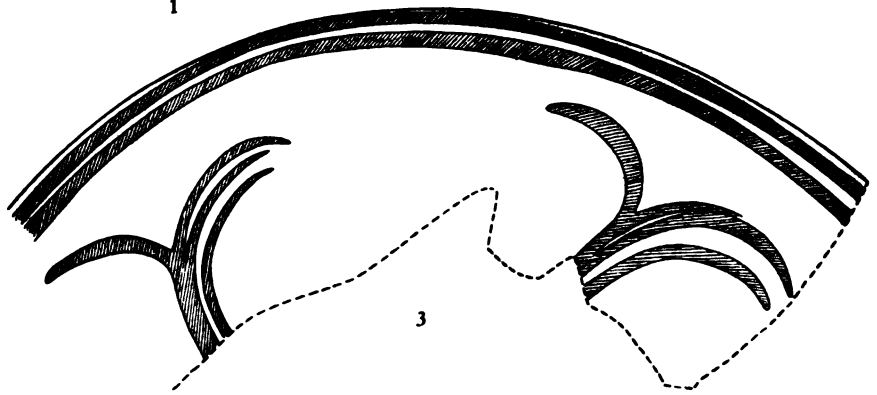




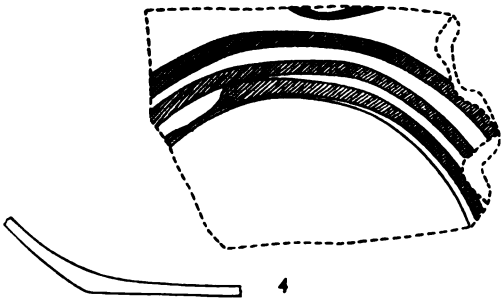
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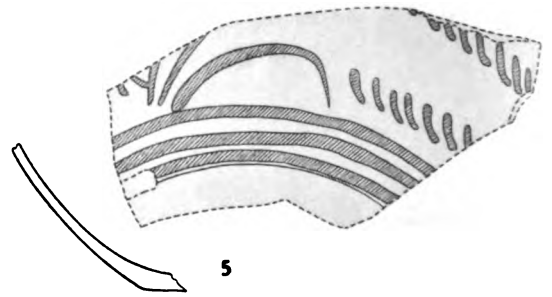
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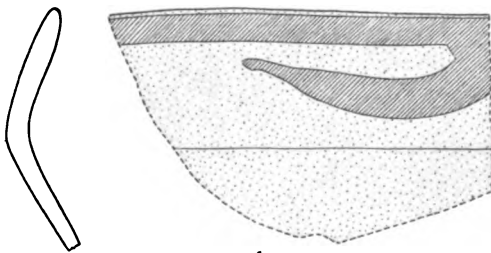
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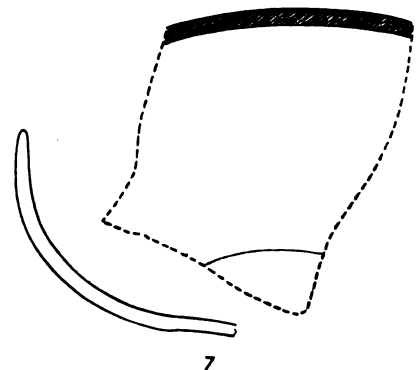
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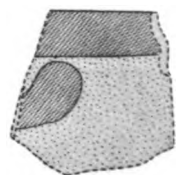
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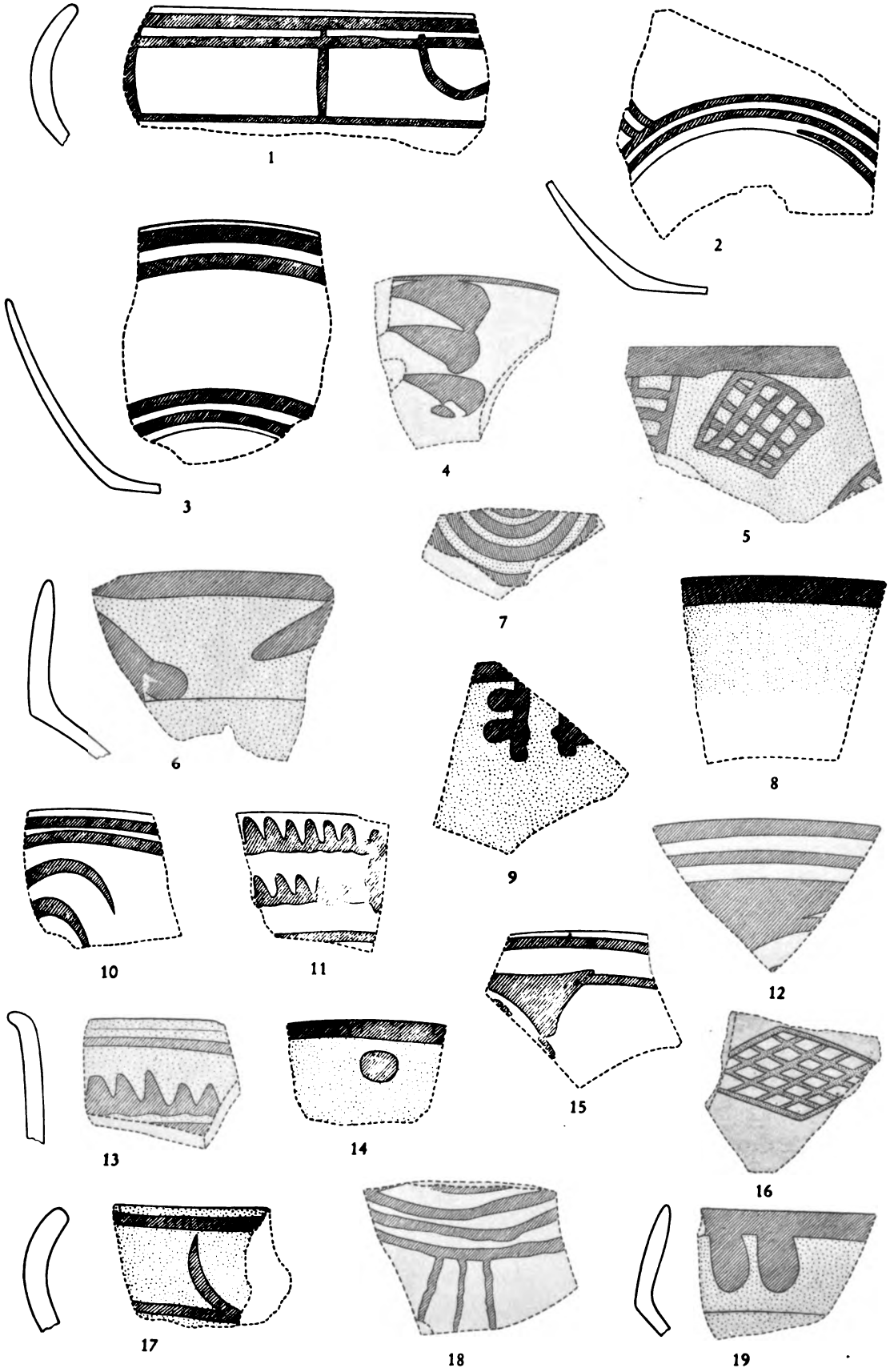
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THE CENSUS OF CHINA DURING THE PERIOD 2—742 A. D.

BY

HANS BIELENSTEIN

People's attempts to find out how many they are go far back in history, but the first efforts have in general been so inaccurate that they do not deserve to be called census. The first real census is not supposed to have occurred before the year 1665 in French Canada, and Sweden has so far had the honour of first introducing official population statistics, namely in the year 1749.

In China, however, statistical material has been kept from incomparably earlier times than in any other country, although its value has been much disputed. A good collocation of this material is to be found in T'u shu tsi ch'eng's economic chapters (Shī huo tien) 9—11, which also give the origin of every statement. The table p. 126 is a survey from the beginning up to the year 742.

This is the basic material used up to now for the examination of the development of the Chinese population.

The first scientific compilation in Europe was made by Éd. Biot in 1836. He takes his material exclusively from Wen-hien t'ung-kao, the population records of which are the same as those in the above table, and he arrives at the conclusion that the figures only represent the free population, not the slaves, and further, only tax-payers. To get the size of the whole population, he therefore tries to estimate how many persons are not included on these tax-lists. In this he was, however, contradicted by J. Sacharoff. This scholar belonged to the Russian Orthodox mission to Peking, where he wrote his work on the development of the Chinese population. He considered it his task loyally to reproduce the Chinese views as he understood them in the historical annals and encyclopaedic works. In his opinion the population figures include the whole population¹). Both Biot and Sacharoff try to find the explanation of the often abrupt changes from one population record to another. They believe that these can be explained by devastations caused by rebellions and wars, together with prosperity and increase as a consequence of wise government. W. Rockhill, however, states that before 1712 as a rule only the number of tax-payers was reported²), and this opinion has on the whole prevailed. Éd. Chavannes takes it up in his review of Rockhill's

¹) 19. Sacharoff p. 131.

²) 18. Rockhill p. 303.

BULLETIN OF THE MUSEUM OF FAR EASTERN ANTIQUITIES

Dynasty	Year	Households	Individuals	Source	
Hia			13,553,935	Ti wang shī ki	
Chou	1115—1079		13,714,923	•	
	684		11,841,923	T'ung-tien	
Han	2 A. D.	12,233,062	59,594,978	Ts'ien Han shu	
	57	4,279,634	21,007,820	Han kuan i	
	75	5,860,572	34,125,021	•	
	88	7,456,784	43,356,367	•	
	105	9,237,112	53,256,229	•	
	125	9,647,838	49,690,789	•	
	140	9,698,630	49,150,220	Hou Han shu	
	144	9,946,919	49,730,550	Han kuan i	
	145	9,937,680	49,524,183	•	
	146	9,348,227	47,566,772	•	
	156	10,677,960	56,486,856	T'ung-tien	
Shu } Wu } Wei }	San-kuo	221	200,000	900,000	Tsin shu
		240	523,000	2,400,000	•
		263	663,423	4,432,881	T'ung-tien
Tsin		280	2,459,840	16,163,863	Tsin shu
Liu Sung } N. Ts'i } N. Chou } Ch'en }	Nan-pei-ch'ao	464	906,870	4,685,501	T'ung-tien
		577	3,032,528	20,006,880	•
		580	3,590,000	9,009,604	•
		589	500,000	2,000,000	•
Sui		609	8,907,536	46,019,956	Sui shu
T'ang		627	3,000,000	—	T'ung-tien
		650	3,800,000	—	•
		652	3,850,000	—	T'ang hui-yao
		705	6,156,141	37,140,000	•
		726	7,069,565	41,419,712	Kiu T'ang shu
		732	7,861,236	45,431,265	•
		734	8,018,710	46,285,161	•
		740	8,412,871	48,143,609	Sin T'ang shu
		742	8,525,763	48,909,800	Kiu T'ang shu
					Sin T'ang shu

work.¹⁾ Lao Kan and Wan Kuo-ting are both of this opinion, and W. Eberhard writes in his review of the essay and the maps of Wan Kuo-ting: »Bei allen diesen Zahlenangaben kann es sich natürlich nur um ganz ungefähre Werte handeln; genaue Zählungen liessen sich ja rein technisch nicht durchführen.«²⁾ L. Giles on the other hand asserts, without proving it in detail, that up to and including T'ang total figures are generally found recording all individuals,³⁾ and H. Maspero seems not to doubt this as far as Tonking and Annam are concerned.⁴⁾

¹⁾ T'oung pao XVI, 1905 p. 122.

²⁾ Sinica 1932 p. 167.

³⁾ 10. Giles p. 480.

⁴⁾ 17. Maspero p. 681.

C. P. FitzGerald, however, believes that always only tax-payers were listed,¹⁾ and St. Balázs, who thoroughly deals with the population records of the T'ang period, states: »Familienliste und Steuerliste waren dasselbe».²⁾

That the population figures of China under such circumstances have fallen into discredit is not to be wondered at. This has been strongest emphasized by Otto Franke, who says: »Es kann keinem Zweifel unterliegen, dass die Ergebnisse der Zählungen der älteren Zeit, da diese ganz bestimmten nicht statistischen, meist Steuer-Umlagen oder Nothilfeleistungen, dienen sollten, völlig unzuverlässig sind», and »Es ist ein hoffnungsloses Unternehmen mit den chinesischen Zahlenangaben, auch wenn sie sich noch so genau gebärden, zu einer Schätzung zu gelangen».³⁾

* * *

The present examination must begin with the question: — Are the figures of the above table comparable at all? This can, of course, only be the case if we know exactly which areas are concerned, as the extension of the empire changed from dynasty to dynasty. Furthermore it is of importance whether or not all parts of the country are accounted for, or whether reports for some of them are missing and thus not included in the final figures. The totals can, in other words, not be accepted without control.

When Shī-huang-ti (221—210) had conquered what was China at that time, he swept away the rest of feudalism, and gave the country the division that has since remained the basis of its administration. The country was divided into commanderies (*kün*), among which the capital with the surrounding area maintained a special position. Every commandery consisted of a number of districts (*hien*) which, in their turn, were divided into subdivisions. The 18 provinces of our time, however, do not go back to the commanderies, the number of which had risen in the year 2 A. D. to 103, and, in the year 140, to 105. These *kün* now received a superstructure of originally 13 departments (*chou*), which were also gradually divided, and during T'ang became equivalent to commanderies. The terms *chou* and *kün* were used alternatively, and concerned the same administrative unit. Because they were now more than 300, ten large territories (*tao*) were created in 627, while *chou* and *kün* remained subdivisions.

The geographical chapters of the annals give in general, but not always, a survey of the extension of the country, by enumerating for a certain year all commanderies with their districts. Besides this they usually give the number of people of every commandery. Figures are recorded for the number of »doors» (*hu*) i. e. households, and for the number of »mouths» (*k'ou*) i. e. individuals. There are such surveys in existence from this period with population reports enclosed in the

¹⁾ 8. FitzGerald p. 137.

²⁾ 2. Balázs XXXIV p. 83.

³⁾ 9. Franke III pp. 37—38, 235—236.

• Ts'ien Han shu, Hou Han shu, Tsin shu, Sung shu, Wei shu, Sui shu, and in the T'ang annals. A possibility is thus offered in certain cases to control the totals of the table. Now it turns out that the whole country is not always accounted for. In Hou Han shu figures are missing for three large commanderies, and the same goes for areas of different size in most of the annals. Such omissions have certainly been the rule during times of political decay. Moreover, the totals regarding the whole country prove to be wrong, as the addition of the figures of the different commanderies is without exception inaccurate. Thus the table gives 12,2 mill. households and 59,6 mill. individuals for the year 2 A. D. The correct figures are 12,4 and 57,7 mill. For the year 140 the survey has 9,7 and 49,2 mill. resp. while it ought to be 9.5 and 48. In the same way one may naturally question the totals of the different commanderies, as there might be a flaw also in their additions. However, as a rule wrong additions are found only in cases of very high figures with many numbers, in which cases the inaccuracy increases with the size of the total. The figures from the commanderies were, however, so low that miscalculations are negligible and in fact seem not to occur.

As the different population figures in our table thus concern not only a country of varying size, but also in several cases are sure to be incomplete, and the addition has moreover proved to be incorrect, it is of course quite useless to reconstruct a population history based on these totals, or like Biot and Rockhill, to make an estimate of additional figures and the annual percentage of increase. Our only possible course is therefore to reject all statements of this general nature and to base our discussion exclusively on such informations in the annals which furnish detailed facts.¹⁾

The value of this detailed material depends on whether the whole population is concerned or only tax-payers. The only possibility of solving this problem is to find out what a taxation list would actually be. — The Chinese taxation up to 763 was based on the theory of equal distribution of land. According to this theory every adult man and woman should receive a land allotment of a fixed size, and in return pay in kind to the State every year. Men also had to do husbandry and military service. The equal distribution of land never passed the theoretical stage, but became nevertheless the basis of taxation, which for that reason was often hard and unjust. The upper and lower age-limits of adults (*ting*), i. e. those liable of taxation, varied, but on the whole they remained about 60 and 20 years respectively. The merchants had to pay special taxes. If part of the harvest was spoilt, the farmer could be freed from the charges. Whole areas could furthermore be freed from taxation in order to cope with famine and cancellation of taxes was also used to stimulate colonization. Territories of

¹⁾ Consequently we have to reject not only the *eo ipso* untrustworthy figures of *Ti wang shi ki* and the population records of *Han kuan i*, *T'ung-tien*, and *T'ang hui-yao* in the above table but also the totals of the annals. The remaining material is then the detailed population reports in the geographic chapters of the annals.

various size were given as appanages to members of the imperial family, to dignitaries and favourites, whereby the State was deprived of assessments. Freed from taxes were children, old people, invalids, and sick people. In certain cases a minor fee seems to have been paid also for children, at least during the Han period.¹⁾ Free from taxation were further soldiers, all officials, nobility in the higher ranks, as a rule the slaves, and, after the establishment of monasteries and convents, also their members. In consequence the value of taxation lists is very doubtful, since only adults who actually paid taxes a certain year were listed, not those who only theoretically were obliged to do so. Thus I cannot make an estimate of the whole population's distribution in the different areas from the regional distribution of tax-payers, as I cannot possibly estimate how many persons are excluded in each individual case.

Evidently the number of household members (m/h) must be greater than the number of tax-payers in the same household. The common basis of calculation is 5,5 members in an average Chinese household, and the equivalent average m/h figure of tax-payers ought therefore to be much lower than this figure, even considering that small and poor households had better possibilities of being freed from taxes than larger ones. Now we find (for details see below) that the m/h figures for the whole country during the years 2 A. D., 140, and 742, i. e. according to the Ts'ien Han shu, Hou Han shu, and the T'ang annals, are 4,7, 5,1, and 5,8 respectively.²⁾ In certain areas the m/h figure of the year 2 A. D. is found to be 8,1 in 140 8,5, and in 742 8,3. Thus we find here the first indication of the fact that these figures cannot merely have in view taxation lists, what with the high m/h values.

Fortunately we do not have to depend on assumptions only. Among the documents brought home from Tun-huang in western Kan-su by Aurel Stein, there is one which is nothing less than a fragment of a census made in the Western Liang State in 416 A. D. This document has been kept thanks to the fact that Buddhist texts later were written on the back page, and it gives a clear conception of how the registration was carried out. Below I quote a paragraph of the translation of L. Giles:³⁾

»Village of Kao-ch'ang in the canton of Hsi-tang, district of Tun-huang, prefecture⁴⁾ of Tun-huang: P'ei Pao, soldier, aged sixty-six.
His wife, Yüan, aged sixty-three.
Their issue, a son, Chin, aged thirty-nine.

¹⁾ 24. Wilbur p. 33.

²⁾ Sui shu's survey for the year 609 gives only the number of households. Consequently a m/h figure cannot be computed.

³⁾ 10. Giles p. 475.

⁴⁾ Giles uses the word »prefecture» for *kün*, while the more common English translation is »commandery».

Chin's younger brother Lung, aged [?thirty-] four. (There is a small hole in the MS here.)

Chin's wife Chang, aged thirty-six.

Lung's wife Su, aged twenty-two.

Chin's issue, a son, Yang, aged two.

Adult males: 2.

Younger adult sons: [1.].

Boys: 1.

Females: [3].

Total number of individuals: [7].

Residence: Chao Yü's [Rampart].»

In this way household after household are registered, and there can be no doubt at all that this is a real census. One 2 year-old child is included, and P'ei pao belongs to the category »old people«. He is therefore included in the total but not in the number of adult males. Moreover the family father is a soldier, and the official of the district is also recorded in the MS. The Tun-huang document is ample proof of the existence of real census. It is curious that this fact has been ignored, especially as it shows, together with the normal m/h figures pointed out above, that the records for the years A. D. 2, 140, and 742, are real census, not taxation lists. It is possible, however, to obtain further proofs.

Everything concerning the population questions during the T'ang period has been excellently collected by Balázs, although he has allowed himself to be led astray in the interpretation of this material.¹⁾ A distinction was made between taxation lists (*ki-chang*) and family registers (*hu-tsi*), and the latter are, in my opinion, complete census. While, during the Eastern Han period, such census were made only the year an emperor died, the people was counted every third year during the T'ang period. Taxation lists were made every year. The districts and the commanderies kept five copies, and three were sent to the State Chancellery. The district officials were fundamentally responsible for the accuracy of the records. Accurate registration was technically quite feasible, as the districts, in their turn, had their subdivisions, thus making the procedure easier and smoother by means of decentralization. There is further no reason why the registration during the Han and T'ang periods should be less thorough than in the Western Liang State during the Migration era (Nan-pei-ch'ao). Balázs has another valuable item, namely the fact that Kiu T'ang shu and T'ung-tien add to the totals for the years 754 and 755 the number of tax-paying and tax free households as well as individuals:²⁾

¹⁾ 2. Balázs XXXIV p. 10 et seq.

²⁾ 2. Balázs XXXIV p. 16.

Year	754	m/h	755	m/h
Households	9.619.254	} 5,5	8.914.709	} 5,9
Individuals	52.880.488		52.919.309	
Tax-paying households	5.301.044	} 1,4	5.349.208	} 1,5
Tax-paying individuals	7.662.800		8.208.321	
Tax-free households	3.886.504	} 11,6	3.565.501	} 12,5
Tax-free individuals	45.218.480		44.700.988	

Here Balázs lands himself in difficulties by translating *hu* (door) as »household liable of taxation». His conceptions of the figures are, besides, very hazy. He is, above all, surprised at the high m/h figures of 11,6 and 12,5 for the tax free households, and refers to them as »rätselhaft»¹⁾ The solution of the problem is, in my opinion, that both the top columns simply give the total population and not the total of those who theoretically were liable of taxes. The liability of taxation concerned during the 750'ies only adults between 23 and 60 years of age, which explains the relatively low number of tax-payers. Besides, one must remember that people lived on the existence minimum, that the death rate was high and consequently the persons in the higher age groups relatively few. On the other hand, the bottom column does not only concern those freed of taxation to the State, i. e. sick people and invalids, people who suffered from bad harvests, people in the appanages, and colonists, but also the number of all automatically tax-free people in the country, namely children and old people, officials, soldiers, the higher ranks of nobility, slaves, and members of monasteries and convents. It is therefore impossible to determine the average number of individuals of a tax-free household, since the number of the automatically tax-free and the tax-freed individuals of all households in the country (not only of households entirely freed of taxes) is included in the bottom column. Nevertheless Balázs divides the number of individuals in this column by the number of tax-free households, and the m/h figure will then obviously be high. I therefore conclude that the totals of tax-payers and tax-free people, i. e. the figures in both the top columns, are nothing else but the totals of the entire population of the country.

Although, for reasons stated above, we cannot use such totals as these directly as a basis for the population history of China, they are none the less very valuable, for, uncontrollable though they are, and probably not a little inaccurate, they obviously refer to the total population (not only the tax-payers). On their analogy we have strong reasons to conclude that the population records in Ts'ien Han shu, Hou Han shu and the T'ang annals are real census, since the m/h figures of the annals lie on the same level. Moreover, their totals are too large to concern solely tax-payers. Sui shu gives no information regarding the individuals, but as the total of households lies on the same

¹⁾ Op. cit. p. 57.

level as in the other cases mentioned, it is here undoubtedly a question of a census in the real sense of the word. The records of Tsin shu, Sung shu, and Wei shu are of another nature, and will be dealt below.

We know further, thanks to the census of Tun-huang, that behind the regional enumeration of households and individuals is hidden a thorough registration of the population, giving information regarding the civil state of the inhabitants, name, age, gender, and dwelling-place, comparable with the population statistics of our time.

* * *

The next question is whether only the free population was counted, as believed by Biot, or whether also the slaves were included. This is more a question of principle, as slavery never existed on a considerable scale in China, apart from the period of the Northern Wei dynasty (386—535). Wilbur, for instance, estimates the number of slaves during the Western Han period to be less than 1 % of the entire population.¹⁾ Wilbur states further that slaves during this time were held both by private persons and the State, that private slave owners repeatedly had to pay special taxes, that slaves in certain cases were confiscated by the State, and that slaves could be freed on certain conditions. All this indicates that the State must have been interested in knowing the number of slaves, and it is therefore more probable that they were counted than that they were not. — As regards the T'ang period, Balázs collocation is again a good help.²⁾ It turns out that the privately owned slaves were included in the family registers, which, in my opinion, actually means that they were counted. It was, moreover, the duty of every Government office during the first month of the year to send to the State Chancellery a list of all State-owned slaves kept by these Government offices. This is important information since the family registers were sent to the same ministry (see supra p. 130). I can therefore only conclude that the slaves with certainty during the T'ang period and in all probability during Han and the other dynasties were included in the census. The debt-slaves have no special position in this connection.

Finally, how about the Buddhist monasteries and convents? — Their members were certainly also recorded. T'ang liu-tien has an item saying that monks and nuns were registered every third year. One copy was forwarded to the Government Office of Sacrifices, another to the Intendancy of State Ceremonies, while a third was kept in the district in question.³⁾ It is interesting to find that the registration was made every third year, as the family registration was carried out at similar intervals, and this is certainly not a coincidence.

¹⁾ 24. Wilbur p. 177.

²⁾ 2. Balázs XXXV p. 2 et seq.

³⁾ Op. cit. p. 17.

The conclusion must therefore be that the entire population was registered. The imperial palace is in all probability an exception, and the same perhaps applies to imperial ministries in the capital.

* * *

As far as I know, only two attempts have been made to make a cartographical report concerning the period before 742 A. D., based on the detailed population records of the annals, namely by Wan Kuo-ting and Lao Kan. Both try to indicate the distribution of people during the Western and Eastern Han periods; in so doing the latter uses ruling to indicate density,¹⁾ while the former uses population dots.²⁾ As I have already mentioned (see supra p. 126) they opine that the figures represent tax-payers. Wan Kuo-ting considers that this does not affect the value of the figures as indicating the relative density of population in the various districts.³⁾ This must, of course, be wrong. Lao Kan's study is more a collection of quotations, and both scholars simply desist from an interpretation of their maps.

For constructing his dot maps, Wan Kuo-ting sums up the figures of all the commanderies within a department into a big lump figure, and then he places the dots very arbitrarily within each department without considering the topography or the situation of the districts. Thus the maps are extremely unsatisfactory, and give only a vague conception of the distribution of people. Fortunately it is possible to deal with this question with considerably greater accuracy.

As I have already pointed out, the geographical chapters of the annals deal with the territory of the country, commandery after commandery, including the number of households and individuals. Under each commandery are given the names of all the subordinated districts, and these must certainly be the basis of our maps. But the names of the districts have not always been the same since these were first organized, they have been altered many times. These changes of name are recorded in the commentary to every district in the annals. During the Ts'ing dynasty the entire material was collected in the large imperial geography *Ta Ts'ing i t'ung chī*, on which modern Chinese geographic encyclopaedias have been based, as well as Couvereur's *Géographie de la Chine*. These encyclopaedias give sporadically from Ts'in and in detail from Han the modern equivalence and locality of the principal township in every district. The identifications are of extraordinarily high value and, with the exception of Couvereur's work, practically always correct. This is made possible by the fact that China's division into districts ever since Shī-huang-ti's reorganization has always been the basis of the administration. As emphasized by Bernhard Karlgren, the situation is quite

¹⁾ 14. Lao pp. 216—217.

²⁾ 22. Wan pp. 142—143.

³⁾ Op. cit. p. 144.

different before this reorganization, during the period of China's feudalism.¹⁾ In order to obtain a basis for putting down the population dots in every commandery, it is therefore necessary carefully and by means of the said identifications to determine the position of the capital in every district, besides examining, from census to census, which districts correspond to one another, what had happened to those which do not reappear, and which new ones have been introduced — a time-wasting but indispensable work. When this has been done one may finally draw maps by means of the identifications and under consideration of the topography. This is in fact the extensive detail work which I have undertaken. All the preparatory stages remain unpublished here, since the final results are given in form of our dot maps and make it possible for the reader to perceive at a glance the number of inhabitants in any part of the country, at the various epochs treated.

It is with regret I have found that Couvreur's geographical encyclopaedia cannot be used. In cases where he has only one single modern equivalent to a district, this is generally correct. Often, however, he identifies the principal township of an ancient district with, not one but more modern places, in one case no less than 61, and this can naturally not be correct. The Chinese encyclopaedias, when mentioning a newly introduced district, say that it originally was part of this or that district's *ti*, i. e. area, but this is pure speculation. In reality the districts in Middle and Southern China at first formed a thin network along the rivers, and their villages and cultivated areas were concentrated around the principal townships. If new settlements and new districts developed a score or a hundred kilometres from one of the old districts, it was generally not a question of a division of this old district, but new colonization. It is therefore unreasonable to do as Couvreur, to record all the districts which under successive dynasties have been created by «division» of an earlier district, and then finally count them all together as the modern representatives of the previous Han district, from which they all, in this theoretical way, emanate. And as Couvreur, in this collection of names, does not even mention which of them is the real equivalent to the original district in question, he lets those who want to use his encyclopaedia down completely. Liu Kün-jen's *Chung-kuo ti ming ta ts'i-tien* (Encyclopaedia of Chinese place names), however, has been a great help in my work, as it practically always gives the correct identification.

Although I trust myself to have proved above that real census existed in ancient and medieval China, that these concerned the entire population, and that it is possible to place the population dots with great accuracy, this was but the first step. Now we have to test map after map, verifying its plausibility, and, above all, to examine whether the changes in the regional distribution of the population from one census to another are reasonable and convincing, and whether they can be confirmed.

¹⁾ 12. Karlgren p. 208 et seq.

Western Han.

Our first census was made in 2 A. D., i. e. the end of Western Han, and is found in Ts'ien Han shu, completed approximately one hundred years later. The population totals are 12,366,470 households and 57,671,400 individuals, i. e. 4,7 m/h. Apart from the commanderies, there is also a number of vassal kingdoms (*kuo*) in this list as well as the one that follows for Eastern Han. These *kuo*, however, had no special position any longer. They were kingdoms in name only, and completely incorporated in the country's machinery of administration.

The map shows at a glance (Plate II) that the incomparably greater part of the population is concentrated to the Great Plain, in the valleys of Wei and Fen-ho, and on the fertile plain of the Min river in Si-ch'uan¹⁾ (cf. Plate I). Roxby's map of China today (Plate VII) shows similar concentrations in the same areas. In the Wei valley my map indicates distinctly the populated areas around the capital Ch'ang-an (Si-an). The same goes for the environs of Lo-yang, the capital of the Chou dynasty. From there the Huang-ho took another course than it does today, namely northwards. On the left bank the population is denser in the western part of the plain, but becomes thinner on both banks towards the estuary. This is certainly due to the danger of floods. Around the river mouth the land is completely desolate, the river kept people at a respectful distance, and another unpopulated belt runs along the seashore as far as Shan-tung. The same belt reappears south of that peninsula, crosses the Yang-tsi and continues into Che-kiang. The coastline is drawn according to modern maps, but was on the whole identical in the year 2 A. D. One must conjecture that a barren belt of sand and salt swamps stretched along the shores, an effective obstruction against inhabitation during the period examined in this paper. — The largest concentrations of people on the Great Plain are, apart from those in Ho-pei, found in Shan-tung and Ho-nan, and it is possible to a certain extent that they still show the sites of the old feudal states, although great changes must have taken place since then. The density of population in the most inhabited areas was, in any case, not much lower than it is today.

The population thins out in the northwesterly direction. The western border of the Ts'in dynasty was here the Huang-ho and T'ao-ho; consequently the commanderies in Western Kan-su were relatively newly established, i. e. during the years 115 and 111 B. C. The territory of China was at the same time extended also in the northeasterly direction. From Liao-tung, which was annexed already in 225 B. C., Wu-ti made a thrust forward and conquered during the years 109—108 B. C. Corea, with the exception of the southern part of the peninsula. Corea was divided into four commanderies, Yüan-t'u, Lo-lang, Chen-fan, and Lin-t'un, of which the two latter commanderies had to be abandoned

¹⁾ In order to simplify the description, I use here and infra the province names of our time.

in 83 B. C. Owing to the advance of the Kao-kou-li people, the entire stretch on the shore of the Japanese Sea was likewise lost in 30 B. C.¹⁾ — The Chinese immigration to Corea took place over land and across the sea from the Shantung peninsula.

Along China's northern frontier there is a belt more densely populated. This belt was with only a few exceptions situated within the fortification wall, and marks its course very distinctly, thus giving proof of the reliability of the dot map.²⁾ It is here a question of military settlements the first creator of which was Shī-huang-ti. They were maintained and developed by Han and the dynasties that followed. Most of the settlements in Western Kan-su certainly belonged to this category. The intention was that these military settlements which protected the frontier should be self-supporting to the greatest possible extent, through agriculture. Deportations had to be used, and were common already during the period of feudalism in China. Shī-huang-ti used them on a big scale to assimilate newly conquered areas, and to secure the frontiers. Thus large numbers of people were sent north during the years 214, 213 and 210.³⁾ In this as in so much else, the Han emperors followed Shī-huang-ti's example. In 127 and 120 poor people were sent north. In 100 the authorities launched a large raid, rounded up condemned persons and exiles, and deported them to the northern part of Huang-ho bend in the Ordos. In 76 young men were sent to Liao-tung, and in the year that followed, criminals had to build fortifications in the same territory.⁴⁾ All this may amply explain the relatively high figures in these areas.

The dot map also makes it possible to reconstruct the southward penetration of Chinese colonization, as the routes of migration are clearly visible. The track to Sī-ch'uan started in the Wei valley. The famous »pillar» passes went through Ts'in-ling-shan, and the colonists continued their surge southwards along the two source tributaries of the Kia-ling-kiang. Some of them continued southeast along the Han-kiang, others went on along the Kia-ling-kiang to Yang-tsī, while a third contingent turned in the direction of the fertile plain of Min-ho. Another track went from the largest population centre of Ho-nan, passed through the boundary between Ts'in-ling-shan and Huai-shan southwards towards the Hu-pei plain. Here they were joined by the colonists who came along the Han river, the old invading point so long defended by Ch'u against the state of Ts'in. From here the immigrants did not follow the Han-kiang towards its mouth, but crossed this river and continued due south across the plain to the Yang-tsī, crossed it, and followed the course of the Yüan-kiang and Siang-kiang into Hu-nan in the southwesterly and southerly directions. The stream of colonists was divided in Southern Hu-nan. Most of them continued along the Siang-

¹⁾ 20. Slawik pp. 5—6.

²⁾ Cf. Herrmann, Atlas of China pp. 22—23.

³⁾ 4. Chavannes pp. 168—169.

⁴⁾ 23. Wieger p. 512, 527; 7. Dubs p. 64, 104, 173.

kiang towards the source, went through the pass, and proceeded into Kuang-si along the Kuei-kiang, while a smaller contingent followed the Lai-kiang. Of those who crossed the Yang-tsī at its estuary some went into the mountain areas in Southern An-hui while the majority was drawn to the fertile plains in Southern Kiang-su and around the Hang-chou Gulf in Che-kiang. From here the colonists evidently did not go into Kiang-si, neither along the Ts'ien-t'ang-kiang nor along the southern Yang-tsī bank. People went instead along the northern Yang-tsī bank to the area north of the Po-yang lake, across the river and southwards along the Kan-kiang. Through the Mei-ling pass the colonists finally reached Pei-kiang in Kuang-tung where they joined the immigrants from Hu-nan along the Lai-kiang. The map shows distinctly that the continued penetration into Tonking and Annam did not proceed along the seashore, but up along the Si river's tributary Yü-kiang, and across the watershed into Tonking.

The southern frontier of the Ts'in empire before 214 B. C. reached somewhat south of the Yang-tsī, but that year the great thrust was made which resulted in the incorporation of areas as far south as Tonking and Annam. Several new commanderies were established, one of them being *Siang*. The site of this commandery has been much disputed. While it is usually identified with Tonking and parts of Annam, Maspero places it in Southern Kuang-si exclusively.¹⁾ Aourousseau, however, opines that Siang comprised parts of Annam, Tonking and the southern parts of Kuang-si, on the north bordering the Kuei-lin commandery.²⁾ To me Aourousseau's theory seems to be the correct one. The commandery Kuei-lin included the northeastern and middle parts of Kuang-si, and as the map clearly shows that the continued penetration southwards went through Kuang-si and not through Kuang-tung, Siang certainly comprised southern Kuang-si. On the other hand the conquerors were hardly obstructed by the low watershed, wherefore at least the fertile Tonking delta seems to have belonged to the same commandery. — After the fall of the Ts'in dynasty the territories annexed in the south were lost, but they were recaptured in 111 B. C. by Wu-ti. The interim might have been fatal for the Chinese colonization, and one must reckon with additional immigration after the year 111. It is very likely, however, that the concentration of people in Tonking still partly reflects Shi-huang-ti's forced colonization of these regions.

Southwestern China never belonged to the Ts'in empire, and the Chinese penetration was here determined by commercial policy. The incitement was the report of Chang K'ien, that he had found goods from Si-ch'uan in Bactria. Wu-ti decided to take possession of the trade lines from Si-ch'uan to Burma and India. This resulted in the conquest of Yün-nan, the eastern parts of which seem to have been colonized from the east through Kuei-chou, where the

¹⁾ 17. Maspero p. 55.

²⁾ 1. Aourousseau pp. 236—237.

colonists arrived especially along the Yüan-kiang. The area around the present Ta-li, however, has been in contact with Si-ch'uan, from where the Chinese advanced on age-old routes of commerce.

A few more words more must be said about the settlements in certain parts of China. Hu-pei and parts of Hu-nan, Shen-si, Ho-nan and An-hui formerly belonged to Ch'u, at the estuary of the Yang-tsi was Wu, and south of it Yüe. Ch'u and the areas along the lower Yang-tsi were already completely sinified at the end of the Chou period. For topographical reasons the population was here concentrated principally to the following areas: along the Huai river, along the upper Han-kiang, from the present Nan-yang in Ho-nan to Sha-shi on the Yang-tsi and from here to the present Ch'ang-sha in Hu-nan, along the northern bank of the Yang-tsi from its mouth to the Po-yang lake, and from the Yang-tsi estuary to Northern Che-kiang. When during Ts'in and early Han colonists migrated to the territories south of the Yang-tsi, they had to pass, for the same topographical reasons, through these areas mentioned. Some of the colonists certainly also settled here, but the bulk of them continued southwards. On the other hand the former barbarian states Shu and Pa in Si-ch'uan received without doubt large numbers of Chinese colonists during Ts'in and early Han, and their old centres of population were to a certain point melted into the colonized areas. This fact may explain the considerable concentration of people on the fertile plain of the Min-ho. The following dot maps show as plainly as anyone could desire that the tracks of migration are a reality. I will revert to this later.

My dot map has finally two white spots of especial interest. One comprises the present Fu-kien, the other, which at first sight is more astonishing, is the area between the Yang-tsi and Huai-shan. Wan Kuo-ting has generously placed dots also in these cases. However, there was actually in the entire Fu-kien only one single Han district, Ye, which is usually identified with Fu-chou. Couvreur in his ordinary way, places nearly the whole Fu-kien under this district. But during Han the barbarian state Min-Yüe was situated here. It had formally surrendered to Wu-ti, but in reality it seems to have kept its independence. This appears already from the curious fact that the district Ye according to the records of the Ts'ien Han shu belonged to the commandery Kuei-ki in Southern Kiang-su and Northern Che-kiang. Now it is evident that these areas, during the entire period dealt with in this paper, never had any contact whatsoever with Fu-kien, and, when Chinese colonists towards the end of Eastern Han started their penetration into Fu-kien, they came from Kiang-si, not from the north. There is a possibility that some Chinese representative was placed in Min Yüe's capital, which is therefore recorded as a district for formal reasons, but awkwardly enough attached to a wrong commandery owing to the fact that the authorities in Ch'ang-an had only a vague idea of its position.

Hu-pei is today one of China's most densely populated provinces (Plate VIII) not least around the present Han-k'ou. Why then was this territory evaded du-

ring and before the Han period? To the extent one can believe the traditional identifications of the place names of the Ch'un-ts'iu and Tso chuan, the situation was in fact the same in the Ch'u state. The main reason seems to be the Yang-tsi which has a difference between high and low tide to the extent of 15 metres or more at the present Han-k'ou, while the water level of the lower Han river may vary up to 8 metres. Today dykes protect the land against floods, but during Han there must have been large swamps from the Tung-t'ing lake stretching up to and beyond the present Han-k'ou. This seems to me an ample reason for the population to avoid the areas along the lower Han-kiang and around the present Han-k'ou. In the area northwest of the Po-yang lake swamps made in the same way any settlement impossible. Thus Eastern Hu-pei became a backwater. But even when during the Migration era, Sui, and T'ang the draining of the swamps was begun, the golden age of these territories had not yet come. This did not occur until Southern China had a large Chinese population, and Hu-pei, through its geographical position, became a key point of the north-southerly and east-westerly trade.

Eastern Han.

Our next source is Hou Han shu, the greater part of which was written by Fan Ye during the earlier part of the fifth century, and which was re-edited in the eleventh. In this connection I will strongly emphasize that neither the late origin of a work nor a re-editing of it need reduce the population figures' value as primary material. If the lists were kept in the archives and in good order, it is of no account whether they were copied a few centuries sooner or later. Moreover the material need not suffer from re-editing to a greater extent than the inaccuracies due to copying mistakes or misprints and these can usually be discovered and corrected. Should on the other hand the order of the archives have been disturbed and the author start inventing imaginary figures, it would be very easy to discover that. It is in fact impossible to lie consistently where statistics of this kind are concerned.

Hou Han shu's census concerns the year 140 A. D. and records 9,455,609 households with 48 million individuals, giving 5,1 m/h. This means a decrease from the the year 2 A. D. of nearly 10 million people — or rather about 8—9 million as the records from three commanderies are missing in the 140 A. D. census. The map (Plate III) shows a large scale decrease in the northwest (6,5 million) and in the northeast (nearly 11 million) but, on the other hand, an increase in the entire Southern China¹⁾ (roughly 9 million). The idea seems plausible that the increase in the south is due to the reduction in the north, that a migration must have taken place.

As regards the decrease in the northwest, this must be owing to the Tibetans and Huns; besides, the moving of the capital from Ch'ang-an to Lo-yang may

¹⁾ The territories south of Ts'in-ling-shan, Huai-shan, and the Yang-tsi estuary.

have contributed to the reduction in the Wei valley. — After having been the scourge of China for centuries, the Huns were finally defeated during the 1st century B. C. They recovered during the unrest which followed the fall of the Western Han dynasty, and once more started their attacks on the northern frontier of China, but in the year 48 A. D. several tribes surrendered. It was the intention of the Han emperors to use these so-called »Southern Huns» as guards on the frontier. They were given dwellings within the Huang-ho bend and in parts of Shan-si, and their chiefs were supposed to take orders from the Chinese. On the other hand during the years 62—60 B. C. some Tibetan tribes had been given dwellings between Huang-ho and Kuku-nor. They did not settle down, however, but started moving, conquered better land in Eastern Kan-su, and continued disturbing, robbing, and murdering their Chinese neighbours. There is reason to believe that also the Huns had difficulties in coming on good terms with the Chinese, suspicion must have been deeply rooted, not least in the latter. Under this pressure from two sides the Chinese seem to have had to yield and to withdraw via Ts'in-ling-shan, especially as this oppression and persecution did not come from tribes outside the fortification wall but from people who permanently lived in their very midst. At the same time as Pan Ch'ao established the highest reputation for his country in Central Asia the north-western territory became increasingly devoid of Chinese inhabitants, and thus the seed was laid for the barbarian domination of Northern China.

The Great Plain had meanwhile been the scene of a catastrophe. In the year 11 A. D. the Huang-ho changed its course. The river broke the dykes in the commandery Wei in Southern Ho-pei (around the present Ta-ming) causing devastating floods, turned eastward and debouched into the sea in Northern Shantung. This in itself must have cost many lives, but on the basis of my dot map I draw the conclusion that the catastrophe was not limited to this. It looks as if the river at the beginning turned southeast whereby large parts of the plain were flooded. The map shows a broad belt with considerably reduced population.

Is there any textual support for this theory? According to Ts'ien Han shu the Yellow River broke through the dykes in 132 B. C. in the same area where the catastrophe took place in 11 A. D., flooded 16 commanderies and sent a branch across the plain. In the year 109 B. C. the breakage point was visited by Wu-ti in person, and repaired. The dyke had thus been open for 23 years.¹⁾ This accident was certainly on a smaller scale since it seems to have been only a large breakage of the dam but not a change of the whole river course as in 11 A. D. There is, however, a possibility that also this inundation can be seen from the map. Plate II shows distinctly a minor gap in the concentration of people south of the river, just south of the point where the dykes broke. The above must be seen in conjunction with an item in the Wang Mang biography in Ts'ien Han shu. A breakage of the dyke had a long time been feared and Wang Mang was worried

¹⁾ 7. Dubs p. 40, 90. The breach was near P'u-yang, south of Ta-ming.

lest the graves of his ancestors in Yüan-ch'eng (near the present Ta-ming) should be flooded. When the accident occurred in 11 A. D. the southern dykes broke, and as Yüan-ch'eng was situated north of the river the danger of the graves being flooded had passed. In order not to take any undue risks, Wang Mang let the dykes remain unrepaired.¹⁾ When it took 23 years to have the dykes stopped, even under the powerful Wu-ti, there is reason to believe that the unrest during the interregnum of Wang Mang and after his fall delayed the repair work several decades. Only when the river had been mastered could parts of the population return and slowly, at least partially, fill the vacuum caused by the accident. Thus the records of the annals confirm the dot map.

Shan-tung had simultaneously been harried by the league of the »Red Eyebrows» who revolted in 8 A. D., and who until 35 A. D. terrorized large parts of Eastern China.

On the plain north of the river the situation on the whole remains unchanged with some emigration to the areas earlier flooded by the Huang-ho or by the Pai-ho and Yung-ting-ho as a result of high water level in the Huang-ho. — As regards the settlements situated all along the northern frontier as a border protection these seem to have been thinned out, certainly owing to the successes in Central Asia, and perhaps trusting to the Southern Huns, especially in the Ordos. The caravan road to Turkestan through Kan-su was still held open by Chinese garrisons.

The decrease in the north is to a certain extent balanced by the increase of the population in Southern China, which is so great that in Hu-nan, Kiang-si, and Kuang-tung the number of inhabitants was quadruplicated since the year 2 A. D. Such an enormous increase cannot be determined solely by nativity, neither can the decrease in the north be due solely to mortality. A migration from the north to the south must have taken place, and the routes are the same as described above. From the northwestern territory the colonists went via Ts'in-ling-shan to Si-ch'uan and Yün-nan, from the Great Plain to the remaining part of Southern China with the exception of Kuei-chou. It is interesting to observe that the population of the coastal stretch in Kuang-tung west of the Si river has not increased. This area was, as mentioned above, situated some distance away from the migration route to Tonking and Annam. The figures concerning the Yü-lin and Kiao-ch'ı commanderies in Kuang-si and Tonking are unfortunately missing, but we may certainly reckon with some immigration. — The increase is extraordinarily great in Yün-nan around the present Ta-li, and the area has been more closely connected with Si-ch'uan through the increase of population along the old trade road. In both cases the explanation seems to be the flourishing commerce with India during the Eastern Han period. It looks as if several trade centres with wealthy merchants and large households developed here. The riches may have had a tempting effect on the non-Chinese population in the neigh-

¹⁾ 21. Stange p. 171.

bourhood, and made them more willing to become registered as Chinese citizens. In addition, the trade and the favourable business conditions seem to have attracted people from the lakes in Eastern Yün-nan. — Fu-kien is still a white spot on the map, but the colonists have already advanced along the Fu-ho which together with the Min-kiang constitutes the natural point of invasion. This forebodes the impending immigration. — Eastern Hu-pei is still a backwater. — It is finally important that no immigration to Kuei-chou seems to have taken place. This indicates that the eastern road to Yün-nan was about to be broken.

How well founded the results gained so far may be, yet an additional means of controlling the accuracy of the figures is desirable. This can be achieved by computing the m/h figure for every commandery.

In the year 2 A. D. (Plate VIII) the m/h figures are lowest in the northwest, highest in Southern China, and remains on the whole between 4 and 6 on the Great Plain. It is impossible in detail to define the cause. For that purpose we should need thorough and accurate statistics with regard to catastrophes, famines, and epidemics. More important is to examine whether the changes from census to census conform to laws. In fact the situation is completely changed in 140 A. D. (Plate IX). The m/h figure has risen where the population has been reduced, i. e. in the north, but has decreased where the population has increased, i. e. in the south. As it is here a question of a rule, it cannot be accidental but must have its natural explanation. This will in its turn be an additional proof of the reliability of the population figures regarding the whole country as well as the commanderies.

In order to solve this problem, one must necessarily keep in mind what a Chinese household actually is. It is not a »natural» family in the European sense of the word, but a »greater» family which generally has a maximum of four generations: Father, mother or mothers, grandparent — frequently a grandmother — the children of the father, and the wives of the children with their young ones.¹⁾ This »greater» family forms, with servants or slaves included, a household, and, as this is usually an economic unit, we may refer to them as an economic family. It is split at fairly regular intervals, often owing to the death of the head of the family, which in turn makes possible the growth of new households. Evidently a large scale immigration will disturb this scheme. The colonists arrived, for obvious reasons, without families, and, as they were many, often more numerous than the people already living in the south, this would reduce the average number of household members. With the growth of new »greater» families the m/h figures returned to the normal level. Plate IX gives a snapshot from a time when this process is going on but not yet finished. In the area immediately south of the Yang-tsī estuary the m/h figure has nearly returned to its old level owing to the fact that immigration reasonably started in this area first. The lowest m/h

¹⁾ H. Harrison Kulp II p. 148.

figures we find in Kuang-tung where the settlers moved in later. Annam, being more peripheral, has apparently had a more natural increase of population, and the disturbances have not been so great as to press down the m/h figure to such an extent as occurred in Kuang-tung. The same may have been the case in the area southwest of the Tung-t'ing lake along the Yüan-kiang, or else the very inconsiderable immigration was terminated at an early stage. This area received few settlers since the bulk of the colonists continued southwards, and Kuei-chou seems for the same reason not to have had any immigration at all. This is, as mentioned before, connected with the development in Yün-nan. Owing to the favourable business conditions around the present Ta-li, many people were drawn there from Eastern Yün-nan, especially maybe the younger sons of the families, thus causing a decrease in population as well as reduced m/h figures at the old homes. Moreover the intimate contact between Western Yün-nan and Si-ch'uan caused the road through Kuei-chou to lose its importance. Thus a natural increase with an annual average of 4‰ could take place in this area (2—140 A. D.), resulting in 8,5 m/h. On the whole large households are favoured in Southern China by the cultivation of rice which demands more man power than any other grain. — An exception from the rule are the new trade centres in Yün-nan with 8,2 m/h despite immigration. Apparently the commercial development favoured the rise of large merchant households with many family members and large staffs of servants, which in itself is sufficient to keep the average high. We shall find similar examples during the T'ang period.

How about the north? — We can state as a fact that the change (decreasing population, higher m/h figures) is not due to the development of large estates. Admittedly rich people started investing in land although it was prohibited in theory, but this did not result in central administration of these estates but in the tenancy system. The farmer was allowed to stay, but as a tenant, and the m/h figure remained unchanged. I see the real reason in the fact that poor people were first forced to dissolve their small households, to emigrate or to go into service, and in consequence this would increase the m/h average as regards the remaining and more prospering households. The emigration also entailed easier access to land, and this must have favoured the keeping together of the large households, as land was the economic basis of their existence. It also may be, in certain regions, that people kept together for reasons of security. — High m/h figures in the north are not always due to emigration. The fact that the danger of floods had vanished along the old course of the Huang-ho favoured natural increase, and the prosperity grew in large regions. This is not sufficient, however, as an explanation of the considerable increase of population in the most northern parts of the Great Plain. An immigration must have occurred there but at such an early stage that it cannot be seen in Plate IX. In the once flooded area south of the Huang-ho the m/h figure has not risen, probably because some immigration was still going on. Finally Corea shows a

lower m/h figure despite reduced population. Here the Chinese positions were gradually being liquidated, and hostile tribes were exerting considerable pressure.

Thus there can be no doubt that one must reckon with internal migration on a large scale, earlier than the migrations of the northern barbarians, and to a great extent making those possible. It was very unfortunate, from a political point of view, that the Huang-ho in this very period forced people to move away from the southern parts of the Great Plain and thus weakened the population of Northern China still further. On the whole the population in the north was reduced by nearly 18 million individuals. As the migration routes can be reconstructed, it is possible to make a rough estimate of the number of those who perished.¹⁾ These figures are for the northwestern region approximately 3,5 million people, and for the northeastern area about 5 million. In reality the number must have been somewhat higher since the increase in the south is not entirely due to immigration, and the colonists had already to some extent multiplied themselves.

It is moreover evident that the sinification of great parts of Southern China in the foremost place was not due to slow absorption of the foreign tribes living there, but to gradual immigration. The first wave came during the reign of Shī-huang-ti, possibly with a minor addition immediately after 111 B. C. The high m/h values of the year 2 A. D. show that no large scale immigration can have occurred later. The next wave is the one described above. One must consider that the immigrants often chose their women among the local non-Chinese tribes. Their descendants formed their own clan, each living in their own village, and up to this date the inhabitants of one village have often the same surname and worship a common ancestor.²⁾ Thus we can also answer the question whether only Chinese were included in the population registers or not. There is every reason to believe that the natives in the south who allowed themselves to be assimilated, more often probably women, have been recorded. Those who refused to adapt themselves had to move up into the mountains out of the Chinese sphere of influence. In the north, however, the Huns and the Tibetans were certainly not counted. They formed a foreign element which only gradually accepted Chinese clothing, language, customs, and slowly went over from keeping cattle to farming.

¹⁾ It is evident that people migrated from the northwestern area to Sī-ch'uan and Yün-nan but only on a very little scale to other parts of China. The population of Sī-ch'uan and Yün-nan increased 2—140 A. D. by 3 million individuals while the population of the northwestern area decreased by 6,5 million: the difference is 3,5 million.

On the other hand people did not move from the northeastern area to Sī-ch'uan and Yün-nan. The population of Southern China except Sī-ch'uan and Yün-nan increased 2—140 A. D. by 6 million individuals while the population of the northeastern area decreased by 11 million: the difference is 5 million.

²⁾ 11. Harrison Kulp II p. 69.

During the period after the fall of the Han dynasty, the fatal development in the northwest approached its fulfilment. Again and again Huns were admitted to move into this area devoid of Chinese, until they finally in 308 A. D. were strong enough to break the unity of the empire. For nearly 300 years Northern China fell to the hands of the barbarians, while Chinese dynasties found refuge south of the Yang-tsi.

Nan-pei-ch'ao, Sui.

The scholars have agreed in one respect, namely that the great Migration era (Nan-pei-ch'ao) meant an enormous setback for the population of Northern China. The barbarians are supposed to have chopped off most of the heads they could possibly get at, and there is talk of repeated annihilation of large numbers of people.¹⁾ Only when the unity of the empire had been restored by the Sui dynasty, a recovery is said to have taken place, which during the reign of the Emperor Wen-ti (581-604) is thought to have doubled the number of households from roughly 4 million to approximately 9 million. The continued examination must be concentrated on finding out whether this conception is correct.

Only one record is available, which may throw light upon the conditions in the southern empire. It is found in Sung shu (written at the beginning of the 7th century) and is from the middle of the 6th century when the Liu Sung state reached its maximum. The number of households was roughly 900.000 and the number of individuals about 5,3 million (5,9 m/h). The figures are so low that we at first sight imagine to have found a confirmation of the decrease. The cartographical representation, however, soon shows that this record is of a rather unique nature (Plate IV). There is namely an area which gives a completely correct picture, comprising the parts of An-hui and Kiang-su south of the Yang-tsi together with the entire Che-kiang, i. e. the areas adjacent to Nan-king, the capital (6,3 m/h). That this is actually the case follows from a comparison of the Plates III and V. The figures from all the remaining parts of the country are unreasonable and therefore incorrect. Either the district officials had control only over the areas in the immediate vicinity of their residential towns, or they did not care to carry out a correct census. In both cases this indicates that the government's influence was limited to a small part of the country, which in its turn explains why the southern empire was never able to exploit favourable occasions to restore the unity of China. It is worth observing how the cartographical representation discloses the inaccuracies in the record of the Liu Sung dynasty.

In order to obtain an idea of the conditions during Nan-pei-ch'ao, we have to turn to Sui shu (written during the first half of the 7th century) and the census contained therein of the year 609 A. D., with no preconceived ideas or belief in the assertions regarding a sudden multiplication of the inhabitants. For the

¹⁾ 9. Franke II p. 69.

entire period dealt with in this paper there is in fact not a single example of any large-scale increase by nativity of the population in the empire as a whole. Where an increase occurs in a minor part of the country, it is always balanced by a decrease elsewhere. A sudden increase, and moreover during so short a period as 25 years, seems therefore absurd. For this reason, and others which I will mention below, I am convinced that this much-discussed increase of population during the reign of Wen-ti never actually took place. Unfortunately Sui shu only gives the number of households, not individuals, wherefore the figures concerning the latter are reconstructed (see text to Plate V).

If, as I believe, the census of 609 is not a record from a period when the Migration era (Nan-pei-ch'ao) was over and its conditions thus not reflected, but rather marked the end of this era, this will have considerable consequences. The number of households is namely 9,067,993, while in 140 A. D. it was 9,455,609, and this would mean that the alleged decrease in Northern China was non-existent. The barbarians certainly killed a great number of people, but not at all such multitudes as previously conjectured. They could, for instance, not have murdered so many Chinese in the northwestern territory simply because there were only few Chinese there. Besides, the invaders were not so numerous either, that they could fill the gaps after wholesale slaughter. The ravaging of the northern barbarians seems therefore to have been greatly exaggerated and the peaceful achievements of the northern dynasties, especially those of the Wei, have not been sufficiently appreciated.

It is of course difficult to obtain an idea of how many barbarians settled in China. While the 11 million inhabitants of the northwestern area (609 A. D.) in its major part must have descended from the barbarians, we must also reckon with a barbarian addition to the Chinese population of the Great Plain, what with an increase from the year 140 of roughly 7 million. The foreign element had, at any rate, been completely assimilated at the beginning of the 7th century.

While the situation had improved and the population increased in the north since 140 A. D., the colonization had collapsed completely in Hu-nan and Kiang-si. With regard to Kuang-tung and Kuang-si, however, the figures are almost equally high as those of the Eastern Han period. The population has here either been undisturbed, or it may at first have decreased also here. In the latter case the number of inhabitants must have increased again by immigration from Hu-nan and Kiang-si. In favour of this alternative we may mention that in Kuang-tung and Kuang-si 53 new districts were founded after Han but before Sui. As long as no increase of population takes place, there seems to be no motivation for the establishment of new districts. This is therefore rather an indication of immigration. The old districts were now thinner populated but still existed, and for that reason the immigrants settled in adjacent areas, thus founding new districts. In fact Plate V does not show the same distribution of the dots as Plate III. Another point is that Kiang-si and Hu-nan together comprise only

21 new districts, situated especially in the southern parts and in the border area adjacent to Fu-kien, districts, of which all but five were abolished again. This is, in my opinion, an indication of a migration southwards and southeastwards slowly petering out. — The decrease has not necessarily started during Nan-pei-ch'ao. It is more probable that it began already after the fall of the Eastern Han dynasty. The colonists lacked protection from a central government, not least against the bullying of the dignitaries, their arbitrary taxes, and internal fights. This may explain why many tried to withdraw to Kuang-tung and Kiang-si where they at that time were practically outside of the Chinese sphere of influence. This development seems on the whole to have been finished around 500 A. D. Whether Hai-nan got its immigrants during this period is, however, not certain. The island did not, at any rate, receive a new administrative division until the period of the Sui dynasty.

It is an important fact in this connection that the isolation of the southeastern region was now broken. The colonization had already during Eastern Han advanced southwards along the Fu-ho in Kiang-si, and towards the end of this time a step was taken into Fu-kien. Since no population records exist which could throw light upon this development, we must try to reconstruct it by means of the districts existing here, recorded in Tsin shu, Sung shu, and Southern Ts'i shu. Thus there were during the Tsin dynasty, in the year 280 A. D., 15 districts in Fu-kien, partly along the Min-kiang and partly southwards along the coast approximately to the 25th parallel. During Liu Sung, in 464, the colonized areas were the same, but the number of districts had been reduced to 10, which, however, during Southern Ts'i (479—501) was increased to 12. From then onwards there are no records until Sui, when we find 4 districts. It is interesting to find that the Amoy area is now, for the first time, becoming colonized. It is thus apparent that Fu-kien right up to the end of the 2nd century is completely outside China's sphere of influence. Then an immigration starts which, however, after 500 A. D., suffers a setback. One might have expected that the southern dynasties would energetically have furthered the sinification of these territories, but they were apparently not able to assert themselves outside a restricted area around the capital. It is therefore probable that Fu-kien in 609 A. D. had fewer Chinese inhabitants than before. Not until T'ang can one refer to the southeast area as a real part of the Chinese empire.

Also Eastern Hu-pei has now become inhabited, and this is hardly accidental. During a period when the invasions of the northern dynasties were checked only by the Yang-tsī, quite a number of people seem to have sought refuge behind the Hu-pei swamps, where, besides, the Huai-shan formed a rampart against the north. Western Kuei-chou and Yün-nan, on the other hand, have been lost completely by the Chinese and were not recaptured until 1252. Of special interest are certain regions of a particular nature, comprising on the one hand the southern part of the Great Plain and on the other Northern Si-ch'uan. These

areas often formed a battlefield for various warring forces between the north and the south which caused decrease in the population. A limited return migration northwards may also have occurred from Sī-ch'uan, but for political reasons this is not very probable.

The fact that our dot map of 609 A. D. admits of a detailed analysis and interpretation of the population conditions and evolution during Nan-pei-ch'ao, such as the one given above, underlines the correctness of our conclusion that no violent multiplication of the population took place at all in the Sui era. If the dot map had depicted the conditions prevailing after such a revolution, the traces we have found of the earlier happenings would necessarily have been obliterated.

T'ang.

For the T'ang period Kiu T'ang shu and Sin T'ang shu have each a geographical report. Kiu T'ang shu, which received its final formulation about 940 A. D., gives a complete survey with chronological details of the administrative conditions during the T'ang dynasty. Even commanderies and districts which existed only a short time are included. Sin T'ang shu, a revised and supplemented edition of the previous work from the middle of the 11th century has a more concise survey for the end of T'ang. Both annals contain the census of 742 A. D. Kiu T'ang shu is more valuable for my study, as thanks to its detailed survey one can reconstruct the administrative situation of 742, a thing which is not possible on the basis of Sin T'ang shu only.

Maspero quotes a work, Yüan-ho kün hien chī, from about 812,¹⁾ containing two census, one from the k'ai-yüan period (713—741), the other from the yüan-ho period (806—820). As this work unfortunately cannot be obtained in Sweden, I have not been able to form an opinion of the value and nature of these records. The T'ung-tien by Tu Yu (735—812) has likewise a census, but this is not dated. According to Sin Tang shu and Tsi-chī t'ung-kien it was made in 740, and Maspero seems to accept that date.²⁾ This information is, however, not very reliable, since T'ung-tien's figures often differ considerably from those of the 742 census. Should T'ung-tien's always rounded figures be trustworthy at all, they would indicate the end of the 7th century rather than a later period. There is, however, every reason to look upon this source with suspicion. Before 742 the empire was divided into *chou* while the expression *kün* was used during the years 742—758. Now Tu Yu based his record on the division in *kün*, in other words, on the administrative system obtaining after 742, and while doing this he has in several cases happened to incorporate in this list the figures of the census of 742 A. D.; but the greater part of his figures is such as clearly to reveal that these are based on some

¹⁾ 16. Maspero p. 547.

²⁾ Op. cit. p. 546. Maspero also asserts that the figures of the T'ung-tien deviate only negligibly from those of the T'ang annals (ibidem p. 547), but this is not correct.

census considerably previous to 742. Consequently his entire record must be considered faulty and has to be rejected. Plate VI is instead based upon the excellent geographical chapters in Kiu T'ang shu.

The dot map reveals considerable changes since 609. In the northwest the population has decreased by nearly 2 million people, and in the northeast by 7,5 million. Si-ch'uan, however, has increased by approximately 1,5 million individuals, and the remainder of Southern China by 5,5 million. The population totals are 8.954.301 households and 51,5 million individuals (5,8 m/h), which means a reduction since Sui by roughly 2,5 million people.

The T'ang period is distinctly the third great stage in the colonization of Southern China, but while this during the Han period could be said to have two main reasons (Huns and Tibetans settled in Northwestern China; the Huang-ho changed its course), the situation was now more complicated. As regards Si-ch'uan one must reckon with two waves of immigration. The first and larger of the two seems to have occurred at the beginning of the 7th century during the time of transition from Sui to T'ang when the Turks made frequent invasions into the northwestern area. In 615 a large Turkish army stood in Shan-si, and after 622 followed constant ravages. The Turkish danger was checked in 630, however, and a period of peace and prosperity followed. After 676 the fighting flamed up again, this time against the Tibetans, though it now concerned only limited areas. During the end of the 7th century and the beginning of the 8th, we must thus reckon with a new immigration to Si-ch'uan but on a smaller scale. Simultaneously the situation became threatening in the northeast. T'ai-tsung (627—649) had, despite warnings, maintained a very pro-Turkish policy, and given the Turks land along the northern frontier of China. Under his wise rule the relations were good, but his successors had not his foresight and judgment. Finally the Turks revolted and started in 683 harrying Shan-si and Ho-pei. Their attacks were devastating and forced people to emigrate southwards, especially from the Great Plain. The ravages did not cease until 725. — Beside these chronologically limited migrations which were due to pressure from without, we find during T'ang a movement of another nature, the flight by the farmers from the soil they owned which was a slow steady process, culminating after the period dealt with in this paper. The reasons were primarily heavy taxation and forced labour, besides increasing debts and extension of the tenancy system, which especially affected the farmers of the Great Plain. These social iniquities, particularly when they were supplemented by famine, caused the peasants to leave their land on a large scale. They seldom became vagabonds, however, as sometimes believed,¹⁾ but followed the old migration routes to Southern China and settled there. This is proved by the fact that the reduction in the north is to such a great extent balanced by the increase in the south. The difference which here again gives only a minimum figure of the loss (cf. *supra* p. 144), is for the northwest

¹⁾ 2. Balázs XXXIV p. 13.

territory less than half a million people, and about 2 million as regards the Great Plain. The loss in the northeast is partly due to the ravages of the Turks, and partly to the wars against Corea. During the campaigns of 612, 613, 614, 645, and 660, large scale recruitings were made, which certainly drained the northern parts of the country of much young blood, especially as the losses were extremely heavy. This is very striking in Shan-tung. All the campaigns against Corea were coordinated with naval expeditions from this peninsula, and the war junks had to be built and manned by its male population. Casualties were severe and show distinctly in the map. The figures thus do not admit of any considerable vagabond population.

In Southern China as well the development has followed somewhat complicated lines. At first sight it looks as if Kuang-si's and Kuang-tung's population has decreased since 609 A. D. It is perfectly evident, however, that immigration must have taken place. In many areas typically low m/h figure occur, indicating immigration, and many new districts have moreover been established during T'ang, which would have been unreasonable with a decreasing population. Instead one may conclude that originally some people have returned from Kuang-tung and Kuang-si to Hu-nan and Kiang-si (cf. supra pp. 146—147), whereafter the immigration from the north increased the population in all the territories. Southern Kiang-su and Che-kiang have received most of the increase. It is interesting to find that this area's isolation from Kiang-si now was broken. Already during the Sui dynasty the Chinese started penetrating into Kiang-si along the Ts'ien-t'ang-kiang, a course which became very important during T'ang. This is one of the reasons why Kiang-si for the first time has a larger population than Hu-nan which previously had been the main migration channel. — There are finally strong indications that the Chinese tried to reopen the way to Burma and India from Si-ch'uan, since the population has increased along the trade road. The setback came when they in the 750'ies made an effort to conquer Yün-nan but were defeated by the Nan Chao state which had established itself in this territory.

A map of the m/h figures for this period necessarily differs from the previous ones, because the slower tempo of the immigration has created particular conditions (Plate X). In many cases one can see how in the south an area with old inhabitation and therefore high m/h figures is surrounded by lower figures, as the newcomers had to settle in the adjacent areas. In other cases the immigration came at such an early stage or so slowly and continuously that it does not show in the map. Very distinctly it appears how in Northern China the m/h figures have risen where the population has been reduced, especially on the Great Plain.¹⁾

Some facts remain to be pointed out concerning the concentration of people in Southern Kiang-su and in Che-kiang, as well as the high m/h figures which prevail from here through Kiang-si right down to the Mei-ling pass. There are good reasons to suppose that in both cases commercial conditions have been a

¹⁾ For explanation of this phenomenon see supra p. 143.

stimulating factor. The Arab trade which expanded very much during the 8th century got its own factories in «Khanfu», the present Canton, and later also in Fu-kien and Kiang-su, thus creating prosperity not only for the foreign merchants but also for the Chinese. Owing to the expensive and unsafe transport only luxury articles were traded, i. e. goods which would bring in fortunes if they reached their destination. Perhaps even more important than the Arab trade was the Chinese trade with Indonesia,¹⁾ and moreover the areas on and south of the Yang-tsi estuary established increasingly intimate trade relations with Japan. From Canton the trade ran through the Mei-ling pass and Kiang-si to Che-kiang and Kiang-su, whence canals opened the way to the north. The importance attached to this route is indicated by the fact that a road was built in 705 through the Mei-ling pass.²⁾ It was this trade which furthered and partly made possible a favourable development in the territories through which it pulsed. — Balázs is astonished that the Canton area, which in 742 was still the centre of the Arab trade, does not show any inhabitation on a larger scale, especially as the descriptions by Arab travellers give the opposite impression.³⁾ The explanation is certainly that the foreigners, who lived in special quarters and not permanently stayed in China, were not registered, neither were their large households.

* * *

The second and third stages in the colonization of Southern China are of a very similar nature. Both were caused by catastrophes, such as war, floods, famine, or extreme social iniquities. The migration was not stimulated by the government who, on the contrary, wanted to keep the peasant on his land. The flight of the farmers was at that time referred to as a national misfortune, which shows that it was generally unknown where they went. With the sole exception of the first wave of colonization in Ts'in time which to a great extent was certainly forced upon the settlers, the sinification of the south was therefore a result of circumstances rather than of a planned government policy.

The migrations influenced the history of China in many different ways. What was lost in the north during periods of weakness was temporarily or permanently gained in the south, but at the same time the political decadance was accelerated by the depopulation of the north. Every new migration southwards must from an ethnographical point of view have had a levelling effect, preventing to a certain point a differentiation of peoples in China, and thus simplifying the maintenance of China's unity. When the northern parts of the country during the Migration era had absorbed many foreign elements, the internal migrations were in their turn instrumental in carrying them along also to Southern China.

¹⁾ 2. Balázs XXXV p. 57.

²⁾ 23. Wieger p. 1758.

³⁾ 2. Balázs XXXIV p. 25.

The linguistic development must also have been affected. An interesting phenomenon is the fact that the north-Chinese colloquial language during the T'ang period was spread all over the country, forming a koiné or normal language (the Ts'ie-yün language) from which almost all modern dialects can be derived. Only few exceptions are known, among which the Amoy and Swatow dialects are the most extreme, emanating as they seem to do from some Han time dialect not directly the ancestor of the Ts'ie-yün language.¹⁾ It seems natural to connect the spreading of the Ts'ie-yün language with the T'ang migrations, in which case there is a possibility of finding a confirmation in the Swatow and Amoy areas. If their dialects are not directly derivable from the Ts'ie-yün language it should mean that these areas were not affected by the T'ang migrations. The answer must be found in our maps (see plates I, VI, X):

Swatow was already colonized in 2 A. D. Amoy on the other hand got its first Chinese inhabitation during the Sui period by immigrants from Kiang-si, whose ancestors had settled there during Han. The Amoy area belonged at first to the only commandery in Fu-kien, Kien-an, but during T'ang it formed a commandery of its own, Chang-p'u, consisting of the districts Lung-k'i and Chang-p'u. The m/h figure was, however, only 3,4 (742 A. D.), so low that it must undoubtedly be due to immigration (cf. supra pp. 142—143), and this seems at first sight to refute our theory. The true solution of the problem can be found in the district Chang-p'u. This was situated roughly 50 kilometres south of the Lung-k'i district which lay near the Bay of Amoy. Chang-p'u was established by the Liu Sung dynasty, and was certainly colonized from the south. During Liu Sung and Southern Ts'i it belonged to the commandery I-an which comprised the Swatow area. In the Sui era the district was cancelled which indicates a large scale decrease of its population. During T'ang, however, it was re-established in the year 686, and this fact shows that the district was again populated. Also this time the immigrants came certainly from the south, i. e. from Swatow. But now the district belonged to the commandery which comprised the Amoy area. Thus, owing to the immigration, the m/h figure was low in the Chang-p'u district, and this was enough to reduce the m/h average of the entire commandery. I therefore conclude that Swatow and Amoy certainly had mutual contact, but together were isolated, and thus did not receive any colonists from without during the T'ang period. This cannot be accidental. Consequently I see in the T'ang migrations the main reason for the spreading of the Ts'ie yün-language. If this is correct it seems to suggest another logical conclusion, namely that the migrations of Eastern Han formed a similar koiné.

* * *

¹⁾ 13. Karlgren p. 44.

The population development during the period 2—742 A. D. which I have sketched here on the basis of our dot maps which in their turn form but a synoptic presentation of the extensive and detailed population records in the dynastic histories, is, I believe, confirmed by what we know of China's history, point by point, without our having to press the material. This congruence between population maps and historical events could never have been so striking, if the maps had been based on taxation lists, which latter would have given quite another regional distribution and which could not possibly have so clearly revealed the causes of the successive changes. It would be desirable, however, that as a last proof and a complement to these census I could show up one or more taxation lists. This is actually possible.

Kiu T'ang shu's survey has not only a figure column for the year 742, but also another, parallel to it, marked «earlier» (kiu) which is undated. Maspero, who apparently has not noticed the different character of the two columns, dates the «earlier» list to the beginning of the 8th century.¹⁾ A more thorough examination shows that this cannot be correct. Figures are missing for several commanderies in the «earlier» column, and it is therefore reasonable to conclude that these commanderies were established later, though, of course, their omission may be simply due to carelessness. In this way, however, one should at any rate be able to produce an approximate terminus ante quem. Fortunately there is another and better way: the districts of nine commanderies are specified in the «earlier» column. Thanks to Kiu T'ang shu's thorough chronological survey this makes it possible to date «earlier» to some time between the years 634 and 643. Terminus post quem is obtained by Yu chou 幽州, which «earlier» had 10 districts. Kuei-i 歸義 was established last of these, namely in the year 634. In two cases there is proof of terminus ante quem. Ki chou 冀州 had «earlier» 6 districts to which some new ones were added in 643. The second confirmation is Han chou 韓州 which was established in 619, abolished in 643, and has figures for «earlier». All other districts of the commanderies, included in the «earlier» column, existed during the period in question, namely 634—643.

It now turns out that this list regarding the years 634—643 gives 2.992.779 households and 12 million individuals, astonishingly low figures indeed. But if it is already impossible that the country's population of 609 A. D. could have been reduced by more than 3/4 during the 30 years that followed, and then again increased to the old level in 742, then it must be considered perfectly absurd that such a reduction should be equally distributed all over the country. It is in fact evident that the figures commandery after commandery all through the State lie on a lower level. The sole reason for this can be that only a part of the population was registered, and this is only the case where taxation lists are concerned.

When thus a taxation list has been discovered, the next step must be to see whether there are more to be found. Suspicion must immediately be focused on

¹⁾ 16. Maspero p. 681.

Tsin shu's record of 280 A. D., having 2.472.625 households, individuals not recorded. This suspicion becomes a certainty when we find that only healthy adults were counted,¹⁾ or in other words that only the tax-payers are included. In the same way, Wei shu's record of the middle of the 6th century reveals itself as a taxation list, though this fact at first sight is not quite so easily discerned. This record occupies a key position as regards the population conditions during Nan-pei-ch'ao. If the recorded figures, which are very low, proved to belong to a census, this would in fact be proof of the decrease. Franke says in connection with these figures: »Sie sind von einer kaum glaublichen Niedrigkeit . . . Nicht zu bezweifeln ist freilich, dass . . . die Bevölkerungsziffer im allgemeinen sehr niedrig und ausserdem sehr schwankend war.«²⁾ But precisely the low figures make us stop and think, and it is in my opinion decisive that they here as well are lower all through the country. The provinces Ho-pei, Shan-tung, Ho-nan, and Shan-si, the only ones fairly completely recorded, show a total of 1,9 million households and 7,4 million individuals, while the corresponding figures were 4,9 and 27,1 in the year 140 A. D. and roughly 5,7 and 35,6 in 609 A. D. The taxation list regarding 634—643 has for the same areas 900.000 households and 3,6 million individuals. One must here keep in mind the taxation system of Wei. According to Chen Huan-chang the lower age limit of adults was brought down to 14 years.³⁾ This will naturally mean higher figures of tax-payers than 634—643 when the lower age limit was 21 years. A further means of investigation is fortunately available in the m/h figures, as these in a taxation list must be lower than in a census. If we compare the assumed taxation lists with the immediately preceding and subsequent census, we obtain the following scheme for the provinces Ho-pei, Shan-tung, Ho-nan, and Shan-si:⁴⁾

m/h	1,0—1,9	2,0—2,9	3,0—3,9	4,0—4,9	5,0—5,9	6,0—6,9	7,0—7,9	8,0—8,9	
Hou Han shu	—	—	2,7 %	18,9 %	37,9 %	29,7 %	8,1 %	2,7 %	= 100 %
Wei shu	2,2 %	21,7 %	30,4 %	39,7 %	6,0 %	—	—	—	= 100 %
Kiu T'ang shu (earlier) ..	3,3 %	4,9 %	13,1 %	50,8 %	27,9 %	—	—	—	= 100 %
Kiu T'ang shu	—	—	5,6 %	12,7 %	38,0 %	26,8 %	14,1 %	2,8 %	= 100 %

1) 23. Wieger p. 1018.

2) 9. Franke II p. 257.

3) 5. Chen Huan-chang p. 516.

4) As Sui shu does not record individuals, the comparison will have to be made with the m/h values of 742 A. D.

The scheme clearly reveals the different nature of the taxation lists and the census. Thus, for instance, 70,1 % of the individuals recorded in the Wei shu (taxation list of the middle of the 6th century) and 63,9 % of those recorded in the earlier column of the Kiu T'ang shu (taxation list of 634—643) were members of households with an average of 3,0—4,9 m/h. On the other hand 67,6 % of the individuals recorded in the Hou Han shu (census of 140) and 64,8 % of those recorded in the Kiu T'ang shu (census of 742) were members of households with an average of 5,0—6,9 m/h.

This should, together with the reasons given above, be decisive. I thus arrive at the conclusion that the material examined in this paper consists partly of actual census, partly of taxation lists:

<i>Census</i>		<i>Taxation lists¹⁾</i>	
Source	Year	Source	Year
Ts'ien Han shu	2	Tsin shu	280
Hou Han shu	140	Wei shu	middle of the 6th century
Sung shu ²⁾	464	Kiu T'ang shu	634—643
Sui shu	609		
Kiu T'ang shu, Sin T'ang shu	742		

The Chinese scholars seem to have been equally unaware of this fact as the western writers, and this has caused a complete confusion in everything concerning the population questions. Thus according to Tsī-chī t'ung-kien the Tsin empire in 280 A. D. had only »1/10» of the population during the Han period. This worried Franke a great deal, and contributed to his discarding the entire material.³⁾ — Kiu T'ang shu's authors cannot very well have understood the different nature of the list of 742 A. D. and the one referred to as »earlier». Otherwise these lists would not have been placed side by side without an explanatory comment. We find that also the alleged multiplication of the inhabitants under Wen-ti of Sui can now be explained. As can be seen from the survey on p. 126, Wen-ti allegedly took over a population of 3.590.000 households and 9.009.604 individuals in 581 A. D. from the Northern Chou state which comprised the entire Northern China. An addition to this were the 500.000 households and 2 million individuals of the Ch'en state, i. e. Southern China, conquered in 589. Using this as a basis Tsī-chī t'ung-kien says that Wen-ti took over a population of nearly 4 million households while the total at the end of his reign exceeded 8,9 million.⁴⁾ Here it was believed that confirmation had been found of the alleged reduction during Nan-pei-ch'ao, but as a consequence one was obliged to reckon with a sudden increase during the reign of Wen-ti. It is, however, impossible to assume that the Northern Chou figures concern the whole population. They record with certainty only the tax-payers. This follows already from a comparison with the taxation list of the Eastern Wei dynasty. Here it must be kept in mind that Northern Chou's 9 million taxpayers comprise the entire Northern

¹⁾ Here I do not discuss in detail the different records of the taxation lists. I hope to revert to these questions in another connection.

²⁾ The fact that Sung shu's record is not a taxation list is proved by the high m/h figures. The above-mentioned inaccuracy of the census is also elucidated by a comparison with Wei's taxation list. This includes 2 million tax-payers for Shan-tung, while Sung shu's »census» has only 660.000 individuals for the same area.

³⁾ 9. Franke III pp. 235—236.

⁴⁾ 23. Wieger p. 1506; 9. Franke III p. 321.

China, whereas Eastern Wei's 7,4 million apply to only Ho-pei, Shan-tung, Honan, and Shan-si. Moreover, the m/h value of Northern Chou's figures is as low as 2,5 which clearly shows that it is a question of a taxation list. Regarding the Ch'en state, it is impossible to judge whether the records are a taxation list or an incomplete census like the one from Liu Sung. The latter is, however, more probable. The alleged large scale reduction during Nan-pei-ch'ao and the following sudden and enormous increase may at any rate be definitely discarded as due to a misunderstanding.

It is certainly no coincidence that nearly all handed-down records in China after the fall of the Han dynasty up to the Sui period are taxation lists. One was satisfied with a simple registration of the tax-payers, since a complete registration of the inhabitants demanded a much larger apparatus than was usually available.

The handed-down records of China's population are thus neither exclusively taxation lists, as generally believed, nor exclusively correct census, as Sacharoff, Giles and Maspero thought, they are of both kinds. This means in its turn that the survey table of the period 2—742 A. D. quoted at the beginning of this paper and incorporating figures of Ti wang shī ki, Han kuan i, T'ung-tien etc. besides the dynastic histories, is a mixtum compositum of census and taxation lists, which fact definitely eliminates it as void of value for a systematic study of China's population history. Unfortunately all examinations of the population history of China have without exception been based on such collocations, which has caused the authors to find enormous, in reality non-existent variations. The »decrease» during Nan-pei-ch'ao is the most striking mistake but not at all the only one. Giles, for instance, repeats the assertion that »the number of households at one time in the Ta-li period (766—779) was only about 1.300.000, this being the greatest drop in population ever recorded in history».¹⁾ The examples could be multiplied. Above all devastating effects have been attributed to the different rebellions. One must have a comically naive belief in the fighting parties' bestiality and bloodthirst to assert that An Lu-shan's rebellion in 755 should have reduced the population of China from 51,5 million people to 17 million.²⁾ In reality the suddenly dropping figures reveal the simple fact that the authorities certainly preferred the simpler taxation registration immediately after the rebellions until the administration had been put in order again. In other cases a complete registration might have been rendered impossible owing to the disorganization which in its turn caused incomplete totals.

It is not sufficient to leave out all records concluded to be taxation lists and corrupt census from the table on p. 126 and build on the remaining ones, since the latter only furnish total figures which are entirely uncontrollable (see supra p. 128). The only way to get a clear idea of the development is to base the examination on the census of the years 2, 140, 609, and 742 (Diagram 1).

¹⁾ 10. Giles p. 480.

²⁾ Op. cit. p. 480. The same assertion is found in practically all historic works about China.

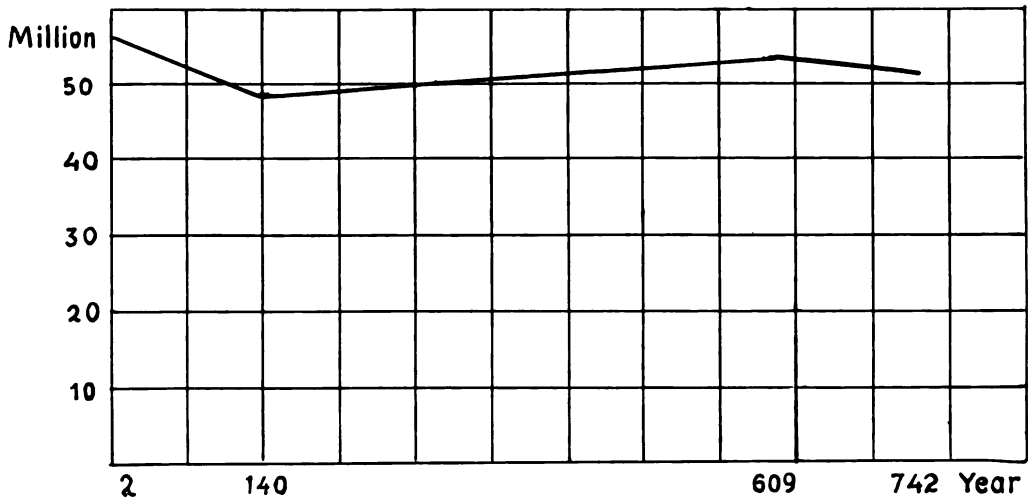


Diagram 1.
The whole empire.

We then find that the population curve is actually very even, and that the only large scale decrease shows during Eastern Han. Though the curve can be based only on four census, there are really, as shown in detail above, no enormous alterations hidden behind it, not even during the long spell from 140—609, only a fluctuating (within very reasonable limits) and not increasing population. This indicates that the population lived at the existence minimum. Considerable regional variations have occurred, however.

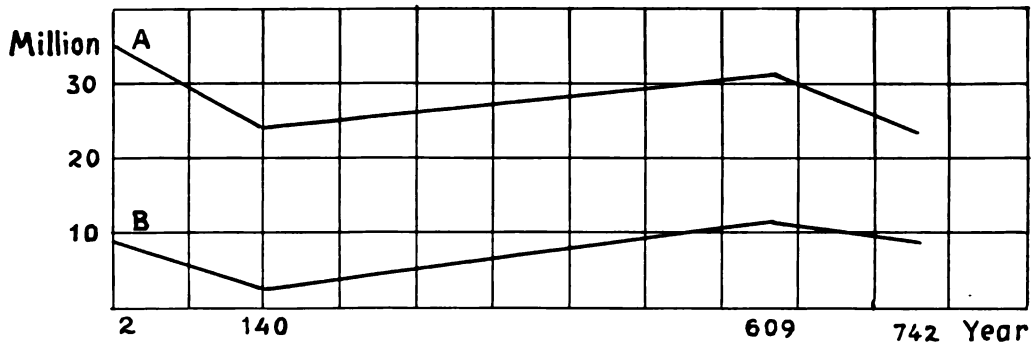


Diagram 2.
A. Great Plain. B. Northwestern area.

Thus the Great Plain shows on the whole a decrease since the year 2 A. D. (Diagram 2) with a minor improvement as a consequence of the influx of foreign blood during the Migration era and the population is here during the T'ang period lower than ever before. The northwestern area has in the year 742 as many

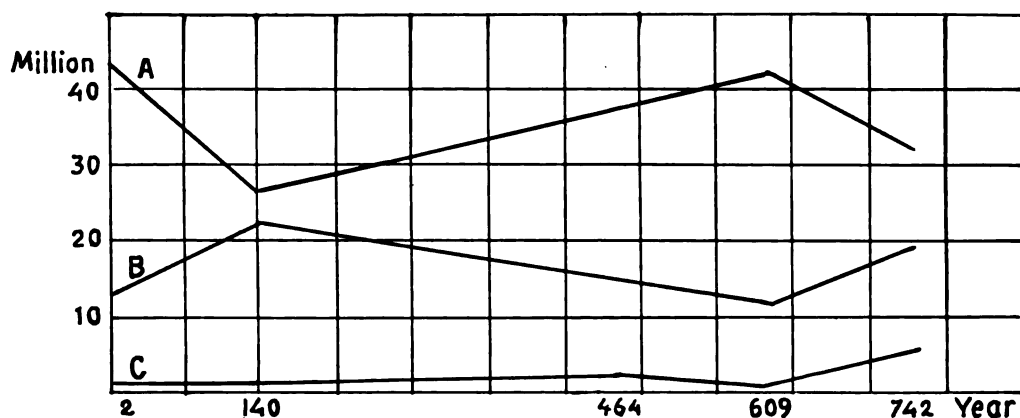


Diagram 3.

A. Northern China. B. Southern China.¹⁾ C. Che-kiang and Southern Kiangsu.

inhabitants as in 2 A. D., but reached both its lowest and highest level in the meantime.

Diagram 3 shows that the maxima of 140 and 742 in the curve of Southern China¹⁾ correspond to the minima in the curve of Northern China. This fact is due to the colonization which entailed migrations from north to south. On the other hand, the minimum in 609 in the curve of Southern China should not be correlated to the simultaneous maximum in the curve of Northern China, since they have no special connection: the former is due to the ever-increasing difficulties of the colonization, the latter to the influx of foreign blood. The population of the south is during T'ang higher than it was in the years 2 and 609 but has not reached the level of 140. The increase is definitely greatest in Southern Kiang-su and in Che-kiang.

A comparison between T'ang and Western Han is mainly in favour of the T'ang period. The population is more evenly distributed all over the country. Fu-kien and Hu-pei are now inhabited by Chinese colonists, the development south of the Yang-tsi estuary has been brilliant, and it is anew promising in the other parts of Southern China. This fact should be correlated with the striking decrease on the Great Plain which forebodes the shifting of the point of gravity southeastwards.

DESCRIPTION OF PLATES.

Plate I.

This map serves only for general orientation.

Plate II.

Number of households	— 12.366.470
Number of individuals	— 57.671.400
Number of commanderies and vassal kingdoms	— 103

¹⁾ South of Ts'in-ling-shan, Huai-shan and Yang-tsi estuary.

As far as Tonking and Annam are concerned, French sinologists have carried out thorough examinations regarding the position of the old districts. In placing the dots I have been guided by the works of Arousseau (1), Madrolle (15), and Maspero (16,17).

Plate III.

Number of households — 9.455.609
 Number of individuals — 48 million
 Number of commanderies and vassal kingdoms — 105

In the cases that follow, the figures are corrupted, which appears from their m/h values:

		According to Hou Han shu		Ought to be
P'ei	沛	households 200.495}	1,3 m/h	200.495}
		individuals 251.939}		1.251.939}
Ch'en	陳	households 112.653}	13,7 »	112.653}
		individuals 1.547.572}		547.572}

These two commanderies are placed in immediate sequence in Hou Han shu's survey, whereby the million seems to have been misplaced.

T'ai-shan	泰山	households 8.929}	49,0 m/h	80.929}	八萬 instead of 八千.
		individuals 437.317}		437.317}	
Lang-ye	琅琊	households 20.804}	27,4 »	120.804}	十二萬 instead of 二萬
		individuals 570.967}		570.967}	
Tun-huang	敦煌	households 748}	39,0 »	7.048}	1)
		individuals 29.170}		29.170}	
Liao-tung	遼東	households 64.158}	1,3 »	The figure concerning the individuals is exactly the same as for Liao-si 遼西. As the m/h value there is normal (5,8), the error must have occurred regarding Liao-tung and it is therefore better to discard its figures entirely. The commandery is referred to as »figures missing».	
		individuals 81.714}			

Yüan-t'u	元菟	households 1.594}	27,1 m/h	10.594}	一萬 instead of 一千.
		individuals 43.163}		43.163}	
Tsiu-ts'üan	酒泉	households 12.706	As a multiplier is used the average m/h figure for the two adjacent commanderies.		
		individuals missing			

Plate IV.

Number of households — 908.502
 Number of individuals — 5,3 million
 Number of commanderies — 277

In 43 cases figures are missing entirely. Judging by the facts available, the figures concerned must be so small that they would hardly mean any change in the map. It is besides possible that the officials in these areas ignored the census completely.

1) Giles's reconstruction is 7.748 (10. Giles p. 479). I believe it to be more probable that *ts'i ts'ien* 七千 has been miswritten *ts'i pai* 七百 than that *ts'i ts'ien* has been omitted in front of the figure 748.

In cases where only the number of households is recorded (30 cases), the average m/h figure for the surrounding commanderies is used as a multiplier.

All figures concerning the area south of the Yang-tsi estuary are complete, and none is missing.

Plate V.

Number of households — 9.067.993

Number of individuals — missing

Number of commanderies — 190 (2 were in Turkistan. They are not shown in the map and are not included in the total).

One cannot unconditionally adopt the m/h figures of the 742 A. D. census of the T'ang period and use them as multipliers for the corresponding areas in 609 A. D., since a new migration movement during the T'ang period changed the m/h figures in the greater part of China. In 609, however, the situation was static, this is shown by the very nature of the map, and the m/h values ought thus to have been rather high in the greater part of Southern China (cf. supra p. 22 et seq.). 6,3, the m/h figure within the area where the Liu Sung dynasty's census has been correctly carried out, has for this reason been chosen as a multiplier for Si-ch'uan and the country south of the Yang-tsi. In the other parts of China the m/h figures of T'ang would generally give too high figures. The multipliers have therefore been graphically computed for large unitary areas from the m/h figures of 140 and 742. The reconstructed total is then about 54 million individuals in 609. The number of households in 609 exceeded the corresponding one of 742. As Southern China ought to have higher m/h figures during Sui than during T'ang, and the same certainly applies to the frontier areas in the north, the total for Sui must be somewhat higher than T'ang's 51,5 million. 54 million seem therefore fairly close to the truth. — According to the survey at the beginning of this paper the number of individuals in the year 609 should have been 46.019.956 and this does not fit in too well with 54 million. I therefore repeat that no conclusions whatsoever must be drawn from the sums in that survey, uncontrollable as they are (see supra p. 128). It is moreover interesting to observe that Sui shu only gives the number of households. Had the individuals been counted, there is no reason why they should not have been recorded as in our other census. Instead, I think it probable that only the households in the whole country were counted in 609, whereas the authorities were content with only a general estimate as regards the total number of individuals. It seems evident that 46 million is too low. With that figure as a basis the m/h value for the entire country would be 5,1. This would mean that Northern China (north of Ts'in-ling-shan, Huai-shan, and the Yang-tsi estuary) had roughly 36 million inhabitants, and Southern China approximately 10 million. But in 742 Northern China had 32,5 million and Southern China 19 million. Thus Southern China should show an increase of 9 million people during the period 609—742 A. D. while Northern China had lost only 3,5 million. Even worse it is considering that the m/h figure was certainly higher than 5,1 in the south in 609 (see above). Southern China's population would have increased on a somewhat smaller scale (about 7 million) 609—742 A. D. while the population of Northern China had remained practically unchanged (the m/h figure of Northern China would have been lower). Evidently this must be absurd. As a migration occurred from the north to the south during the T'ang period, and as the population of Northern China was moreover reduced through the Korean campaigns and the ravages of the Turks, the decrease from Sui to T'ang must have been rather considerable. If thus Northern China had 32,5 million inhabitants during T'ang, the corresponding figure during the Sui period cannot be less than 40 million,

rather more. From all these considerations we may conclude that 54 million people for the entire China in the year 609 is a plausible figure.

In one case the figures of Sui are apparently wrong. 2.330 households are given for each of the two adjacent commanderies Wu-yüan 五原 and Yü-lin 榆林. As it is impossible to tell which of the figures is wrong, both have been discarded. The commanderies are referred to as »figures missing».

Plate VI.

Number of households — 8.954.301
 Number of individuals — 51,5 million
 Number of commanderies — 331 (3 were in Turkistan. They are not shown in the map, and are not included in the total).

According to Maspero¹⁾ the number of commanderies would be 362, but this cannot be correct. The T'ang annals have 331 regular commanderies. Des Rotours gives the latter figure²⁾.

The T'ang annals also record the areas outside China proper, which for a longer or shorter period belonged to the empire. While in Kiu T'ang shu they are included in the geographical survey, Sin T'ang shu has a special collocation. Only Kiu T'ang shu sporadically gives population figures for these peripheral areas. The recorded figures are, however, too small to show in the map, wherefore they have been omitted.

If there is a reason for suspecting misprints in Kiu T'ang shu we have a valuable possibility of control in Sin T'ang shu, which records the same census. Two commanderies (Ch'ao-yang 潮陽, Wu-k'ü 武曲) have for some reason or other fallen out of Kiu T'ang shu although they must have existed in 742. They have thus to be completed from Sin T'ang shu.

For 28 minor commanderies Kiu T'ang shu only records the number of households. In such cases the average m/h figure of the surrounding commanderies is used as a multiplier. In some cases Sin T'ang shu has here adopted the figures concerning individuals from the T'ung-tien, a source of errors, which must not be overlooked.

		According to both T'ang annals		Ought to be
Jao-yang 饒陽	households	18.825}	18,5 m/h	48.825}
	individuals	346.472}		346.472}
Tsin-ch'ang 晉昌	households	477}	10,5	1.477}
	individuals	4.987}		4.987}

The neighbouring commanderies Kao-yao 高要 and Sin-ch'ang 新昌 have each 9.500 households, individuals not recorded. As it is impossible to decide which of the figures is wrong, both have been discarded. The commanderies are put down as »figures missing».

Plate VII.

Reproduced from Roxby, P. M., The distribution of population in China. Geographical Review XV, 1925, p. 5.

Plate VIII-X.

The maps show the m/h figures in the different parts of China in 2, 140, and 742 A. D. The figures are computed on the basis of the records in the dynastic histories.

¹⁾ 16. Maspero p. 547.

²⁾ 6. Des Rotours p. 264.

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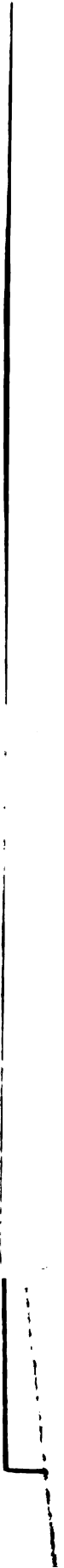
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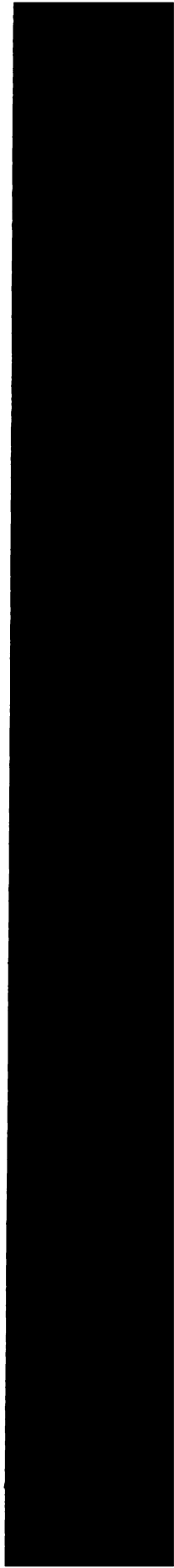
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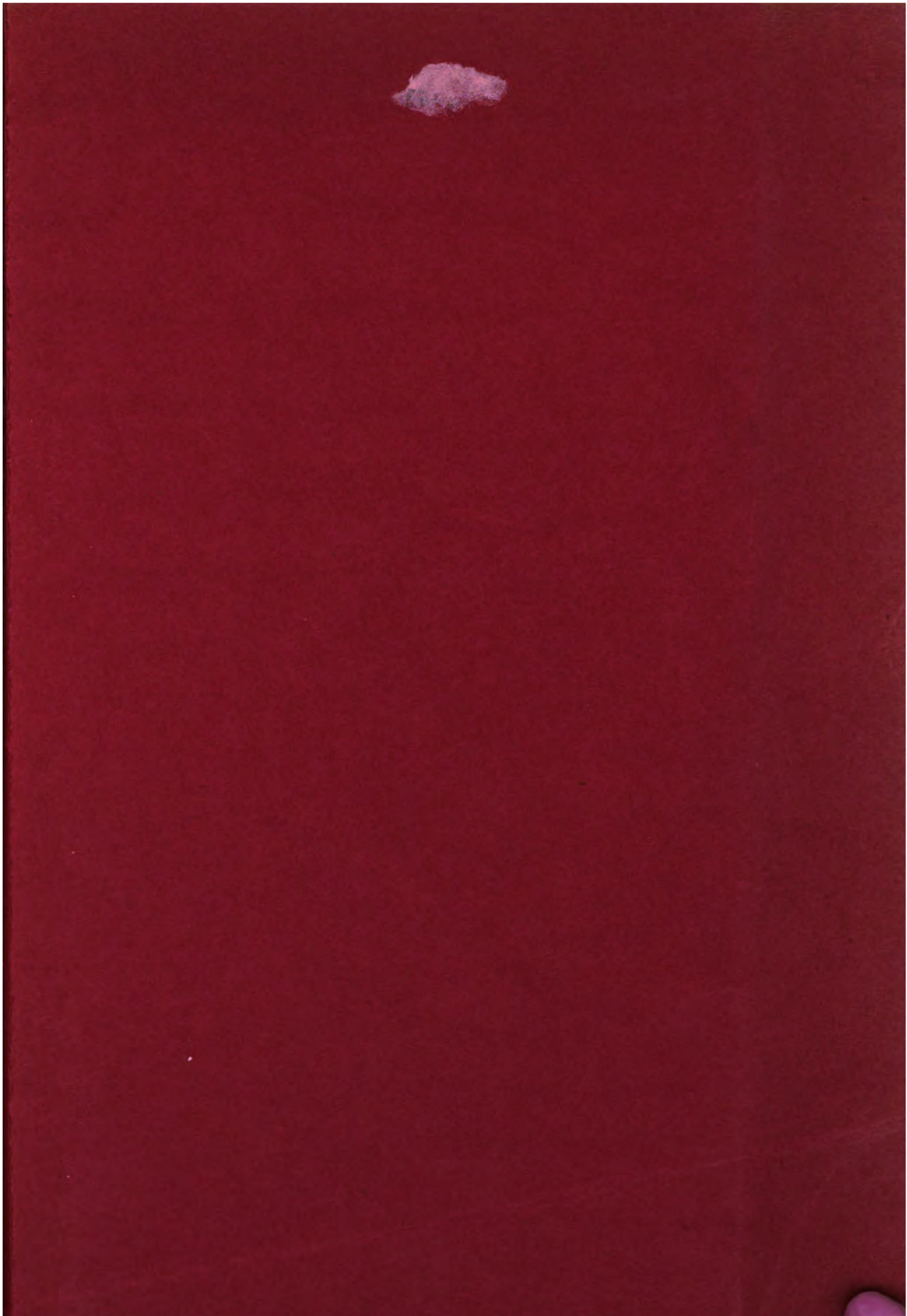




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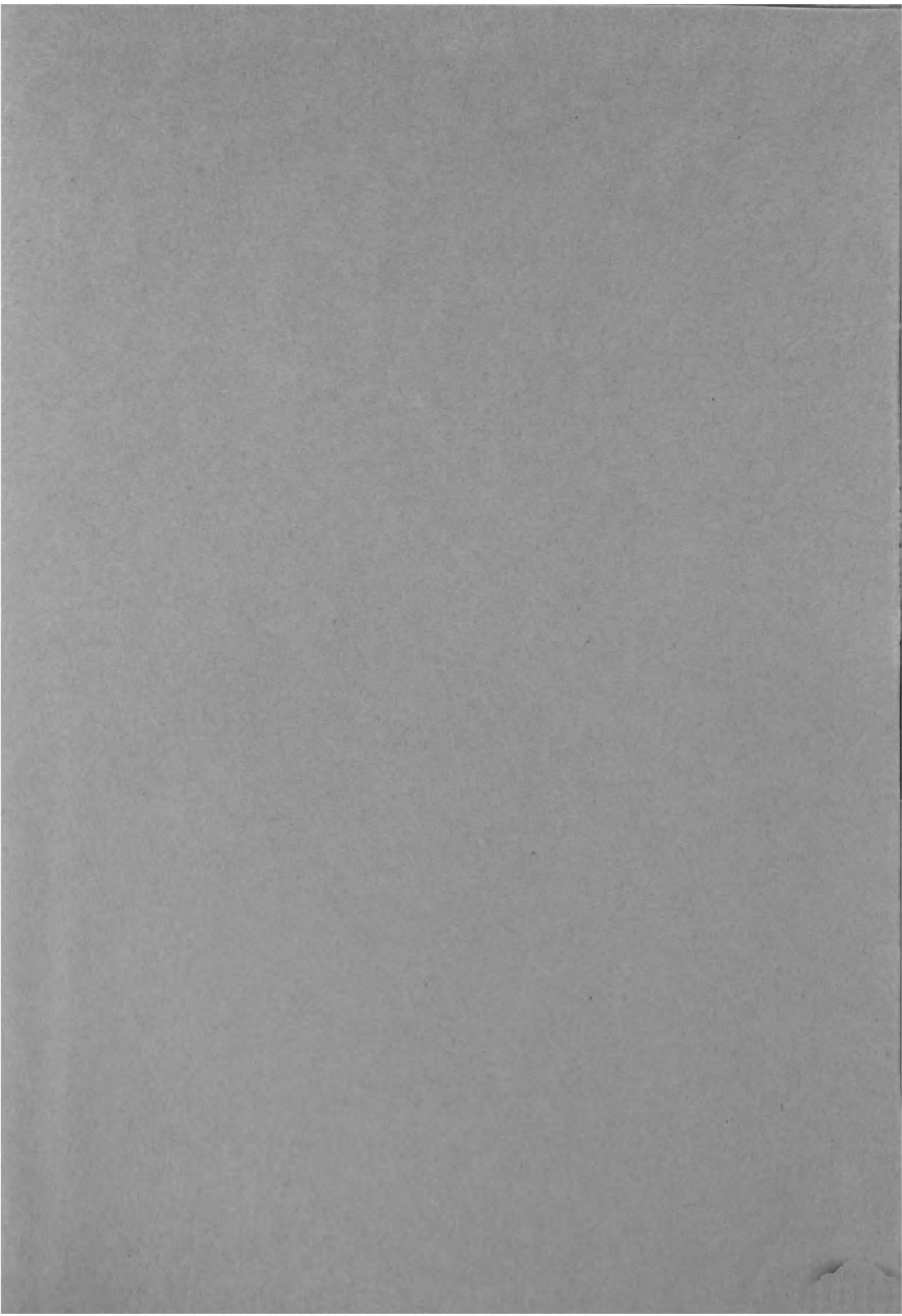
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